THE

physical therapy

REVIEW

Volume 34 - Number 11 November 1954

A Revised Method for Obtaining Atrophy-Hypertrophy Measurements – GRAHAM and KRAMER

Ultrasound Therapy – MILLER and WEAVER

Abdominal Exercises and Pneumoperitoneum: Adjunctive Therapy in the Treatment of Tuberculosis – HARMONY and TSAPRALIS

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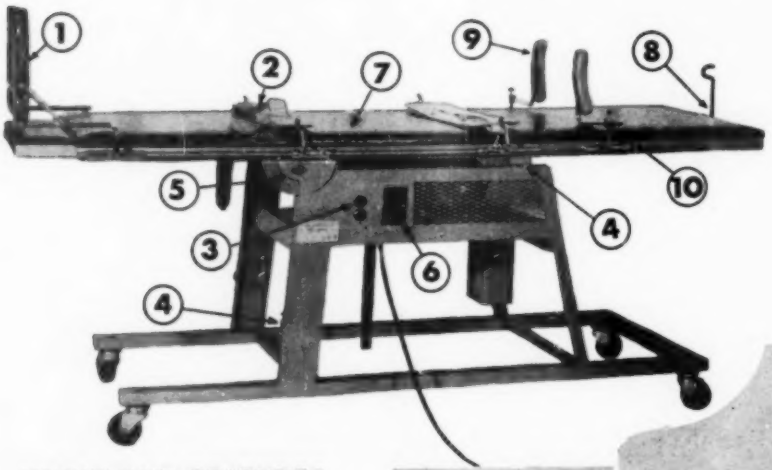

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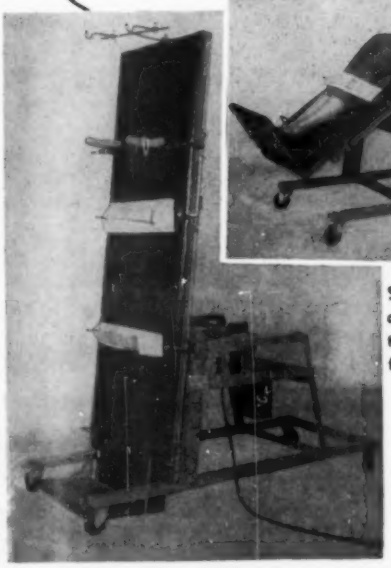

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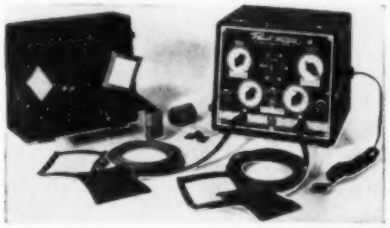

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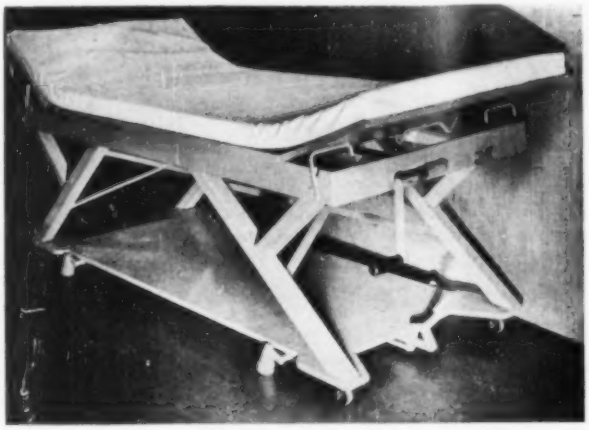

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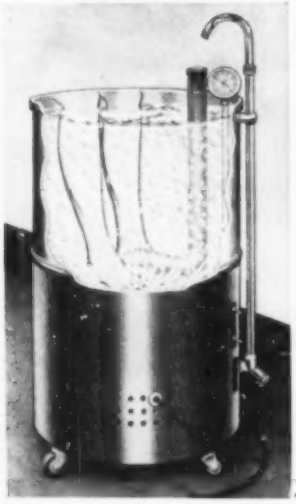

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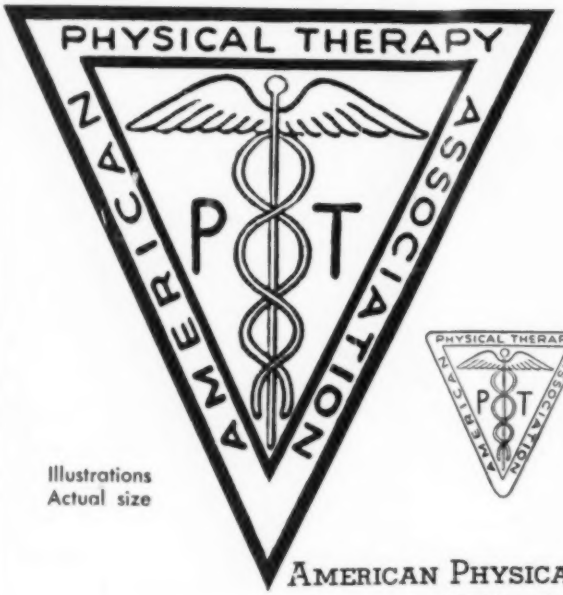

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The Physical Therapy Review

Official Publication of The American Physical Therapy Association

Vol. 34 **November 1954** **Number 11**

A Revised Method for Obtaining Atrophy-Hypertrophy Measurements

Marshall A. Graham, M.S. and Herbert Kramer

For the past year, the Prosthetic Devices Study of the Research Division of New York University has been engaged in a study of the comparative value of several types of below-knee prostheses. A phase of this study was concerned with the determination of morphological changes of the thigh, leg or stump of the amputee subjects due to the wear of an experimental prosthesis. It was necessary therefore to duplicate measurements on the same subject periodically.

The method that was instituted for determining these changes was the generally accepted clinical procedure as follows: With the patient lying in the supine position with legs extended, the tester marked the apex of the patella as a base point for all measurements. Then, with the aid of a tape measure, marks were made on the anterior aspect of the lower leg at intervals of two inches (2, 4, 6, 8, and 10 inches, or as many as were needed for the length of the leg of the individual patient). In addition, the thigh was marked at 4, 6, 8, and 10 inches above the apex mark. The tester then recorded the circumferential measurements of the part at each of the marked levels.

During the course of the study it was found that this procedure was inadequate for the collection of accurate data. It was determined that three major sources of error existed. They were:

a. Placement of the Measuring Tape at the Correct Site (see figure I)

A flexible tape was used to mark off the two inch increments. This type of tape tended to follow the contours of the leg differently from time to time, thereby causing errors in the duplication of the markings at the correct site on the leg.

b. Placement of the Measuring Tape at the Correct Angle (see figure II)

The placement of the tape was not always at the same angle relative to the cross sectional level of the leg being measured. Thus errors were caused which were dependent on the slope of the tape toward either the smaller or larger segment of the part.

c. Correct Tension of the Measuring Tape on the Part

The tester was not able to duplicate the tension applied to the measuring tape from time to time. This was especially true when a cloth tape measure was used. This area of error, added to those listed in *a* and *b*, caused in-

Staff members of the Prosthetic Devices Study, Research Division, College of Engineering, New York University, New York, N. Y.

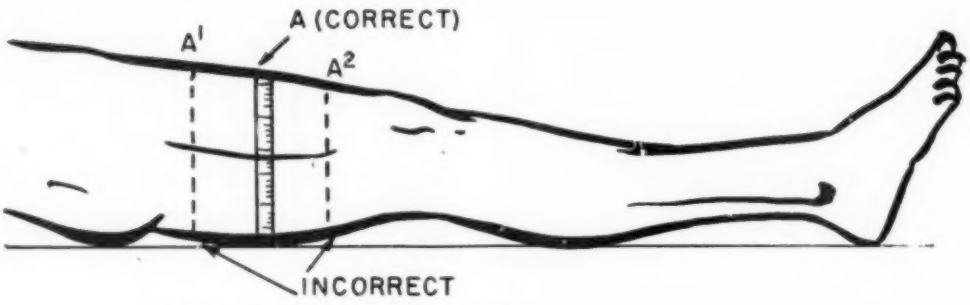

Figure I. Possible errors in placement of a tape at correct site on extremity.

accuracies of too large a magnitude for satisfactory results.

It was decided to devise a system of taking atrophy-hypertrophy measurements that would reduce the sources of error listed in *a*, *b*, and *c*. The resulting device is composed of three parts: (1) a marking board, (2) a marking jig and, (3) a tape measure and tension unit. Following is a description of the parts and the technics of their uses.

The marking board (see figure III) was made from a piece of ⅜ inch plywood 26 inches long and 22 inches wide and rigid enough not to buckle with the weight of the legs. The width is sufficient to accommodate the widest portion of a patient's thighs to be measured. The board can be fastened to a leather plinth top with considerable security and yet can be easily removed. To prevent side slipping, additional wood rims were placed on the underside of the board to encompass both sides of the plinth.

The surface of the board was made smooth to prevent irritation of the bare legs of the patient. Then, in order to minimize the first of the inaccurate factors of measurement, i.e., the site of tape placement, transverse lines were inscribed at two inch increments for the purpose of establishing points of measurement at specific distances from the apex of the patella. In addition, longitudinal lines were placed at one inch intervals as a means of recording the exact lateral position of the patient's legs while the transverse reference points for measurements were being determined. At a later date these two sets of lines make it possible to duplicate the patient's position on the board.

In order to reduce the chance of error in the angle of tape placement a jig was fabricated (see figure IV), to enable a mark to be made upon the anterior aspect of the leg that would coincide exactly with the transverse lines marked on the surface of the board. In this way there are three points of orientation for the tape while the measurements are being taken, i.e., two points on the board (one on each side of the leg as it rests on the board) and the mark on the

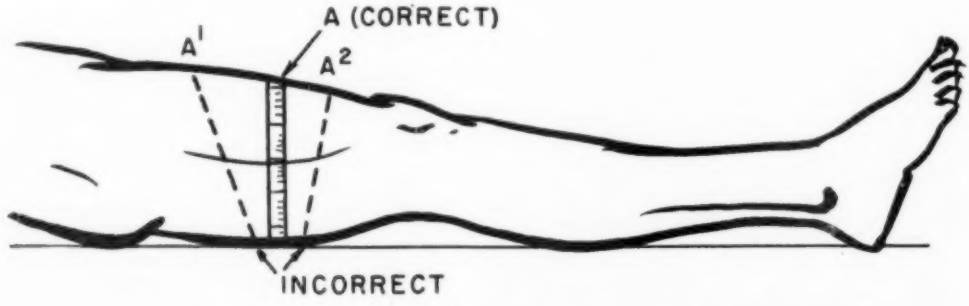

Figure II. Possible errors in the angle of tape placement on the extremity.

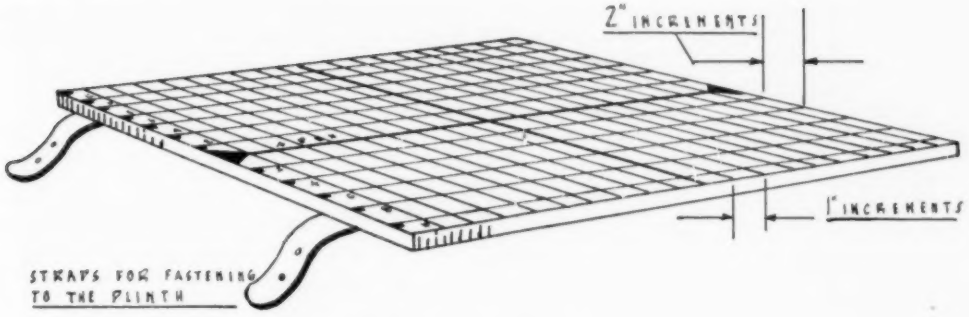

Figure III. Marking board for atrophy measurements.

anterior aspect of the leg. With these constant, there is little chance of error in the angle of placement of the tape. In order to allow the patient to relax while the measurements are being taken, it is suggested that marks be placed on the medial and lateral aspects of the body part to be measured, corresponding exactly to the lines on the marking board. (If this is not done, the patient must remain perfectly still until all measurements are completed.)

The marking jig consists of three pieces of wood (it can be metal, but should be rigid) formed into an inverted "U" shape. A fourth piece acts as a guillotine-like marker. This rides up or down on tracks cut into each end of the wood that match metal tracks on the inside of the two uprights of the frame. The marker should be of the same width as the frame.

The inside height of the jig should adequately clear the thighs of the patient. (If an unusually obese patient is to be measured, a simple extension can be made for the upright sides of the jig.) The inside width should compare with the width of the marked board previously described. On the upper cross piece, a bubble level was inserted at right angles to the wood to aid in orienting the entire jig in the vertical position. Lastly, for convenience in use, a small latch was attached to the side of the top piece to hold the marker out of the way during placement of the jig over the patient's legs and while the device is not in use.

To ensure that the mark on the anterior aspect of the leg is in the same plane as the lines marked upon the flat board, the frame just described is aligned with the two ends of one of these lines. When the level shows that the frame is perpendicular, the marking strip is lowered to the patient's legs and used as a ruler for marking them. In order to simplify the process of aligning the frame to the lines upon the flat board small pieces of metal or wood were permanently fastened as increment marking stops to the edges of the board at each of these lines (see figure V). It thereby becomes simply a matter of placing the legs of the frame against the two appropriate metal markers in order to proceed to the final marking of the anterior of the legs. This procedure eliminates the possible error to be found if the tester attempts to align the frame to the line markers by eye.

As stated previously, the third area for error

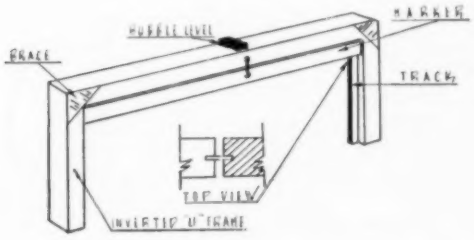

Figure IV. Inverted "U" frame and marker.

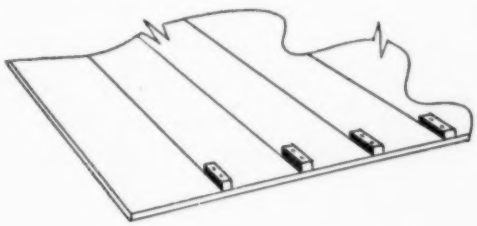

Figure V. Increment marking stops.

is in the duplication of tension on the tape that is used for taking the actual measurements. In order to reduce the amount of variation occurring in this aspect of the problem, a tape measure of flexible steel was selected, so that no stretch would occur within the material itself. Further, one end of the tape was spring loaded in order to make constant the amount of tension that is applied to the tape during the measuring phase.

It is to be noted that, rather than being an integral part of the tape, the spring loading system is attached to the tape by means of a screw; thus, it is possible to replace any tape that breaks without having to replace the entire spring mechanism (see figure VI).

The operation of the spring loading is as follows: The tape is placed about the part to be measured, with one edge of it in line with the three marks already described. The tape reel A is held stationary, with a finger on the tape itself so that no slippage can occur at this point. The spring loading device is held between the index finger and thumb of the other hand at point B in such a manner that the markings on it (E, F, and G) can be seen easily. With the tape measure scroll held constant, tension is applied on the spring D by pulling the plate that is grasped between the two fingers. This tension causes the bar C to move away from the spring. Increasing tension is applied until the markings E and F line up with G and H respectively. At this point, the tension is held constant and readings are taken.

For the purpose of the project of the Prosthetic Devices Study laboratory, all readings were taken on a centimeter scale, but readings in inches also can be utilized. The tension on the spring was recorded at one pound. However, the actual tension is not important as long as it remains constant for each subsequent measurement. It is suggested that the spring tension be kept low (approximately one to two pounds) to reduce the possibility of gross distortion of soft tissue during measurement.

A test-retest control pilot study was made on a series of subjects. Figure VII shows the test equipment in actual use on a below-knee amputee. Some of the results of these test measurements are as follows:

In a series of 80 measurements performed by each of the authors, the differences in raw scores ranged from 0.0 centimeters to 1.0 centimeters. The mean of the differences was .33 centimeters or about ⅛ of an inch.* This compares extremely favorably with trial measurements by two experienced testers on the same patient utilizing the original procedure (tape measure only) where differences of ¾ of an inch were not uncommon.

All of the above measurements were done with little previous experience of the testers with the described equipment. It is the opinion of the authors that, with practice, they can reduce even further the differences between equivalent meas-

* Conversion table for centimeters and inches lists ⅛ of an inch equal to .3175 cm.

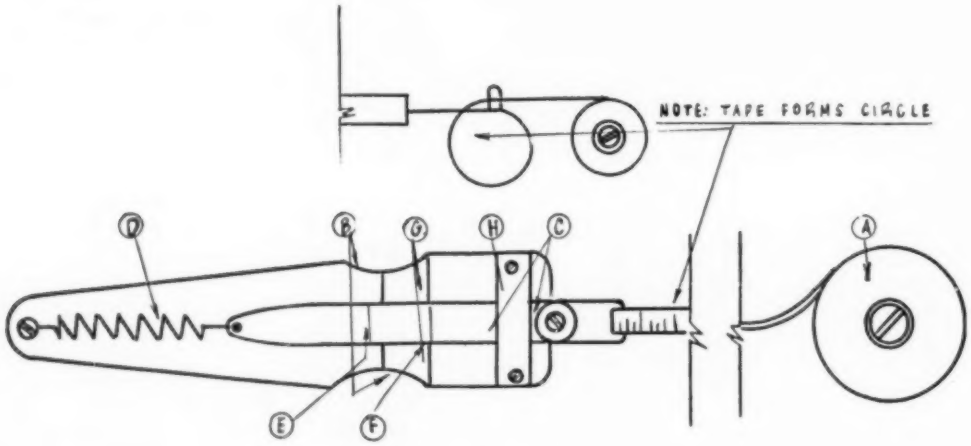

Figure VI. Tape measure and tension unit.

Figure VII. Preparation for measurements.

ures until that difference becomes negligible even for research purposes.

An implication of the use of the above technic for taking atrophy-hypertrophy measurements is that a person with little training and no "feel" of the tape can obtain accurate measurements.

Better Patient Care

A handbook on mobilizing your Personnel Resources for Better Patient Care has been prepared by the Health Resources Advisory Committee through its subcommittee on Hospital Services. It is designed to help hospitals increase the effectiveness of their personnel. Supervising physical therapists will find it most helpful in carrying out their duties and responsibilities more effectively.

Sections include: developing key people as leaders; preparation of new employees for group planning; guide lines for effective conferences.

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Ultrasound Therapy*

F. Eugene Miller, B.A., and James B. Weaver, B.S.

Introduction

Although the use of ultrasound for therapy with human tissue is relatively new, already some years of study have elapsed. In 1927, Wood and Loomis described the physical and biological effects of high frequency sound waves of great intensity. Interest was aroused abroad and much study done in this field of investigation and application in therapeutics. Ultrasound has been in use in some European countries since 1938. The Second World War interfered with the spread of knowledge concerning this modality, but it is important that our temporary lack of knowledge should not cause us to shut out a good tool, nor go to the opposite extreme and expect this tool to solve all problems. This new modality provides a challenge to careful investigation and proper use.

The Machine

The apparatus is an electrical oscillator which generates a frequency of close to one million cycles per second. These variations of electrical potential are conveyed by coaxial cable to the sound head where a quartz crystal expands and contracts, moving the sound face which in turn gives off a beam of mechanical vibrations of the same frequency. These vibrations, with proper coupling, can enter the patient's tissues for therapy purposes.

When ultrasound is transmitted through different substances, the efficiency of the coupling from one to the next is importantly dependent on the similarity of density. If the difference is great between the two there is more reflection and less transmission of energy. Inasmuch as the metal sound face is of different density from the air around it, transmission through the air is poor and we exclude the air by applying oil, water, or a gas-free ointment, which is more dense, between the sound head and the patient's tissue. The densities are more nearly the same, now, and the energy travels through the couplant into the tissue. It is important to realize that the slightest air space will insulate the sound head; hence, the couplant must be adequate at all times, and the management of the sound head must exclude the air from the radiation surface.

Ultrasound is a modality which requires more than knowing how to turn on the machine, or how to move the sound head correctly. It requires an accurate knowledge of the underlying structures, the nerves, blood vessels, organs, and the approaches to them. Particularly, it requires careful judgment, observation, and a willingness to vary dosage to suit the individual patient at the moment.

Considerations For Use

Wave frequency. In ultrasound, it is not the intensity but the frequency and the absorption constants of the medium which govern the depth of penetration in a given type of tissue (Schwan and Carstensen). The frequency of nearly one million cycles per second is selected for its good beaming, absorption, and penetrating characteristics.

Pulsing waves. If one wishes to reduce the heating effects of ultrasound, he may devise small interruptions in the flow of the ultrasound waves leaving spaced impulsed sound waves. This brings about decreased heating of tissue because of convective loss of temperature through the blood stream during the sound-free interval. Pulsing permits much higher amplitude of waves before overheating; hence, there is the possibility of greater mechanical effects without heat destruction (Bauer). This practice would seem to increase the heat margin of safety in the use of ultrasound for therapy purposes. This wave form has been especially recommended for use near the upper spinal cord or brain, with osteoarthritis and spondylitis deformans. The pulsed wave may be superior where there is an attempt to liquefy thixotrophic gels, for a rise in temperature tends to delay this reaction. According to the literature, some investigators have concluded that impulsed sound waves are today the ultrasound form of choice in treating acute

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disorders of the neurovascular and skeletomuscular systems. (Bauer, Port, Wulff, and Zach).

Type of sound head or adaptor. Small sound heads cannot project as great a wattage safely as larger ones *with larger crystals.* The energy would become too intense per unit area of radiation for safety. Some large sound heads have a high or very intense center beam. This may be due to too small a crystal or other design characteristics. It is desirable that the sound field over the area of the crystal should be as uniform as possible. Adaptor caps of various sizes and shapes have been designed to fit over the sound heads. These may focus the energy, spread it, multiply it at the point of contact, or reduce it. Adaptors necessitate a change in the technic of application, because the differences in the sound fields must be carefully considered.

The generator must be tuned to the crystal for greatest efficiency. Tuning means achieving optimum resonance between the electromagnetic frequency of the generator and the oscillating frequency of the crystal. In many cases the output calibration of the machine is inaccurate unless this is done.

Technic of area treatment (Zach).

With an oil couplant on the skin, the sound head is held in gentle but firm contact and moved constantly with a slight overlapping motion in such a way as to send an even pattern of energy into the treatment area. Since the intensity of the beam emitted from the sound head is greater at the center than at the edges, small overlapping circular motions used in applying the energy will tend to even it, and a forward motion will make sure that the general pattern of application is covered. If the area is small, use a slight concentric rotary motion and reduce the intensity to 10 or 20 per cent of that used for the larger area. If the area is large, cover the pattern by laying it out in strips about 2 inches wide by 5 inches long, and progress over each strip once each 30 seconds. If a near maximum dose is being given, the speed of motion of the sound head may have to be increased slightly to prevent undue accumulation of effect at any one point. In many cases, it may be desirable to treat the innervating nerve roots paravertebrally after treating the local area; for example, in the case of joints: for hip and knee, L2 to S2; ankle, L4 to S2; shoulder, C4 to T2; elbow and wrist, C6 to T2. In order to understand better the relationship between the areas treated and the affected area, one should consider the segmental innervation to the bones, muscles, and skin; the neurovegetative system; the Mackenzie-Head reflexes; and "trigger area" relationships in the case of myofascial pain (Travell and Rinzler).

If the treatment is underwater, the submerged sound head is held one-half inch from the tissue and moved in the same pattern and with the same speed as previously described. This approach is advantageous in treating uneven surfaces such as the hands, feet and elbows, because the beam has a more even over-all pressure approach instead of merely touching the high points. Moreover, it allows for better angling of the sound head without loss of coupling. If the water has been boiled or "degassed," it may be necessary to reduce the intensity about 20 per cent. If the water has not been "degassed," keep all bubbles off the sound face and receiving tissue.

If an ultransonation follows another modality, particularly diathermy, the tissue may be sensitized, and a one-half or two-thirds lowering of the dose has been recommended by Zach.

Acute and chronic cases may require different approaches. It is recommended that acute cases be treated daily with low dosage for about one week and then at intervals of three or two treatments per week. We treat chronic cases with more power but space the treatments initially to three or two per week. After courses of treatment ranging from ten to thirty, depending on the dosage and the patient's response, he is given a two- or three-week rest period.

The time duration per treatment is usually from 3 to 6 minutes at normal intensities. This may be extended moderately if the smallest intensities are being used, although it is difficult to see the usefulness of this for any purpose except sedation, where very low dosage and a little more time may have a meaningful relationship. It may not be permissible to increase the time unduly at normal intensities since histamine is released in the tissues, and there are more complex responses of the neurovegatative system which dictate conservatism.

Intensity.

There are three types of intensity which may be of comparative interest. 1. The total watts output from the head. 2. The intensity per unit area of crystal radiation surface as expressed in watts per square centimeter. This is arrived at by dividing the total watts output of the head by the area in square centimeters of the radiating crystal. This is the most used comparison. 3. If the sound is pulsed, one might want to compare

the peak amplitude of wave intensities. For this, multiply the watts per square centimeter by the momentary peak intensity factor of your particular machine (this factor can always be had from the manufacturer). Favor the least intensity which will achieve the therapeutic changes; hence, begin a little low and increase intensity. Since energy is absorbed in passing through tissue, consider target depth, and the amount of energy which can reach it safely. Wave amplitudes up to 3 w/cm2 with moving sound head seem safe (Dussik) and, if the wave is pulsed, the momentary peak amplitude may go much higher, depending on pulse ratio.

PHYSICAL EFFECTS OF ULTRASOUND

Mechanical.

1. Micromassage of cells proper and tissue at a molecular level.
2. Dispersion of fluids (Van Went).
3. Cavitation, which has not been demonstrated in living tissue at therapeutic intensities (Lehmann et al).
4. Increase of the permeability of some membranes.
5. Exertion of a propelling force such as might be used to drive small amounts of medication into the skin.

Thermal. Heat is generated in the tissues by absorption of ultrasound energy. Reflection, scattering, and damping of shear waves are of main importance in this connection. The advantages of ultrasound are its good beaming and penetrating characteristics. Whether or not ultrasound is the modality of choice for thermal purposes will depend on the need for extreme local selectivity, depth of site, and the safety and convenience of application.

Chemical.

1. Fluid absorption by the interstitial substance when the dosage is adequate (Van Went).
2. Thixotrophic gels may be liquefied.
3. Gas exchange intensified (Rosenthal).
4. Chemical oxidations intensified.
5. Increase of the number of ions passing through membranes.
6. Release of histamine in living tissue (D'Agostino).

Specific and unknown actions. Some investigators, including Bauer, feel that there are other specific actions which lead to therapeutic results. These may be in the subtle relationships of the already mentioned effects, but they do not seem explicable on the basis of heat alone.

Previously ultrasound was used for its form of selective heating effects on border lines between tissue layers with different acoustical indices. Many authors refer to the biological action in tissue as a new form of diathermy. Others stress the importance of considering the mechanical actions on biological membranes due to alternate shaking in the shortest time intervals.

From the physics viewpoint, heating means nothing else than induced Brownian movement in tissue; and exposure to ultrasound nothing else than motions of molecules induced by one frequency and in one direction out of the infinite number of frequencies and directions of the Brownian molecular movement.

THERAPEUTIC ASPECTS OF ULTRASOUND

We should keep in mind that stimuli of differing intensity may elicit different types of response from a living organism capable of reaction and adaptation (Schwartz). Various intensities of dosage may prove sedative, stimulative, or destructive. Destruction at one level of dosage does not prove that destruction occurs at a lower level. Moreover, we should consider not only the local reaction but that of the whole organism both immediately and in the following time cycles. As clinical effects may be observed, the local and general effects are mainly dependent on 1) Intensity; 2) Reactivity of the individual; and 3) The area of application.

Neural Stimulus. The biologic action of ultrasound may be nonspecific (Phillips et al). Our practical knowledge shows that the indications for ultrasound are always correlating with neural therapy, which means influencing different diseases over neural pathways.

It is the opinion of Bauer and Stuhlfauth that exposure to ultrasound creates locally in the area of exposure a decreased action potential in cerebral and autonomic nerve fibres, somewhat blocking, as procaine does. This is followed by general response reactions of the person through complex mechanisms. Ultrasound may act via neural pathways to influence the central nervous system; it may influence the neurovegetative system and its control and, possibly, the endocrine system, thus promoting change and adaptation; and it may affect living tissues by way of the terminal vascular system.

Pain reduction. Ultrasound has frequently demonstrated its ability, when used in moderate dosage, to reduce pain. Increased membrane

permeability may be a factor in reducing irritability with regard to pain and muscle spasm (Bauer).

Muscles with high tonus may be relaxed, and normal tonus reestablished. This would suggest its usefulness in some types of "spasm—pain—spasm" syndromes (Zach). We have used it successfully in relation to "trigger areas" and myofascial pain.

Dilatation of blood vessels. This takes place if the intensity is low. The flow of lymph is accelerated. It obviously has an important relationship in improving blood supply, establishing better drainage, and securing many advantageous effects secondary to these. The neural effects, those on muscle fibers, and that of histamine may be concerned in this. High dosage may cause vasoconstriction.

Local nutrition. It seems probable that ultrasound influences an improvement in local nutrition. This may be due to improved blood supply, increased membrane permeability, increased local food or oxygen metabolism, or possibly other factors not yet understood. A few authors consider ultrasound as a modality to be used to influence the rebalancing of autonomic function in tissue. Practically, this means the restoring of normal metabolism in tissue.

Special effects. Work with scar tissue, Dupuytren's contracture (Bierman) and calcific tendonitis suggest new areas of usefulness for this modality. These effects would appear to be more nearly mechanical in nature.

INDICATIONS

The indications for the use of ultrasound are so numerous that a text would be required to weigh such recommendations. Van Went's text in English is worthy of careful study. In general, the indications usually relate to one or more of the therapeutic effects mentioned in the previous section. In 1953, Stuhlfauth and Woeber released calculations based on 101,629 case reports which they had collected. An excellent table of these calculations, with the diagnostic groups arranged in the order of greatest success resulting from treatment with ultrasound, will be found along with an excellent discussion in the article by Dr. A. W. Bauer, "The Present Position of Ultrasonics," *The British Journal of Physical Medicine*, May, 1954. In the same issue of the journal, and recommended for careful study, is an article, "Technical and Clinical Application of Ultrasound Energy," by Phillips, Smith, Biro, Boynton, and Zach. Our own dosages were consistent with, but slightly lower than, those recommended by these authors. The apparatus we have used was manufactured by the R. J. Lindquist Co.; it delivers pulsed waves, and has the same specification as described in the last mentioned article. The moving sound head technic is employed.

CONTRAINDICATIONS

Established contraindications seem few if moderate dosage is employed. Tentatively considered are advanced heart disease; vascular affections where there might be danger of emboli; tumors where there might be danger of encouraging growth or metastasis; hemophilia; the gonads, the pregnant uterus; and pulmonary tuberculosis where it might disturb the calcific encapsulation of the focus of infection (Van Went). Very low dosage should be given and all precautions taken if the following are included in the sound field: heart, endocrine glands, the central nervous system, the ear, or the eye.

PRECAUTIONS

If the therapist is working many hours with a machine it is advisable to have extra insulation, such as one-half inch sponge rubber around the grip of the sound head to prevent the accumulation of the effects of the energy in the hand and arm. If one is giving many underwater treatments a soft knit glove can be worn to provide air space insulation inside a rubber glove.

If the patient feels any pain *during* the sonation, the intensity is too great and the intensity should be reduced or speed of the sound head motion should be increased. A transient aggravation of pain appearing a few hours after treatment is not an indication for discontinuance but may be a favorable sign. Zach describes this as a hyperactive general reaction of the autonomic nervous system, mainly when over 1.5 w/cm^2 is used, or in acute cases when there exists a high sensibility of the patient toward any stimulation.

RECOMMENDATIONS

The therapist must reevaluate the dosage at each visit of the patient. Therefore, accurate records must be kept for this purpose, for the purpose of the physician in weighing and prescribing further therapy, and for the protection of the therapist. Our records include: doctor, date, diagnosis, and onset; precautionary clear-

ance as to heart, pregnancy contraindications; prescription with specific directions; the spacing of the treatments; notes as to the initial symptoms; distribution of the pain pattern, frequency, character; the dates of treatment; and the timing of the energy over the area pattern at what intensity. Sound frequency and pulsing notes must be made if these are varied. Frequent progress notes are written. The therapist reviews the patient's chart before the first treatment and after each visit the patient makes to the prescribing physician.

It would appear that there is a wide range of usefulness for ultrasonic energy in therapy. Since its effectiveness depends upon correct diagnosis, correct indications with special consideration to neural factors involved in the clinical picture of disease, on the exact area of application and the exact mode of application, it is apparent that this treatment requires the closest cooperation between the physician and the physical therapist. The person *applying* the energy must have studied it carefully, and must have the knowledge of it in *every* instance of use.

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Abdominal Exercises and Pneumoperitoneum

Adjunctive Therapy in the Treatment of Tuberculosis

Wilma-Nell Harmony, B.S., and Paul C. Tsapralis, M.D.,
Assisted by Roger E. Bardsley, Ph.D.

The present era is full of major changes in the treatment of tuberculosis. Pneumoperitoneum as a method of treatment has been known for over sixty years, and as a treatment for pulmonary tuberculosis has been used for twenty years. Exercise, per se, has been known since the beginning of history, and exercise, as a therapeutic agent, can be traced back to the Chinese medical writings as early as 2600 B.C. It is a significant fact, however, that a review of the literature offers little in trying to establish criteria for the place of exercise in the treatment of a patient with tuberculosis.

Exercise for maintaing muscle tone, stimulating circulation, maintaining flexibility, increasing appetite, and generally producing a sense of well-being has been used effectively in specific types of illnesses, but with a notable exception of the disease, tuberculosis. Rest is conceded to be the greatest single factor in healing tuberculosis, exclusive of collapse measures. Yet, William J. Habeeb, in his treatise on *Exercise in Tuberculosis*, extends a plea for the conservative use of exercise in the treatment of tuberculosis. Similarly, George T. Stafford, includes in his book, *Exercise During Convalescence*, a chapter on "Therapeutic Exercises for Tuberculosis Convalescents." Huddleston, Linduff, Wilson, Strzelczyk, Treister and others have reported the use of exercises as a specific in preventing postural deformities preoperatively and postoperatively on thoracic surgery cases in tuberculosis without interference or hindrance to the arrestment of the disease. The absence of specific literature, other than this, however, does not disprove the value of proper exercise for the tuberculous patient; and the wealth of material presented by Linduff and others should bear this out. Therefore, accepting the value of therapeutic exercise, it was felt by the medical staff that a graduated minimal exercise program could be allowed; particularly after constitutional symptoms of malaise, fever, or loss of appetite had subsided. Consequently, an abdominal exercise routine was started for the patient who was to receive initial pneumoperitoneum as a method for therapeutic pulmonary relaxation in the treatment of his tuberculosis.

Since the amount of air the abdomen will hold is largely dependent upon the tonus of the muscles of the wall of the abdomen and the diaphragm, the purpose of the problem was to study the elevating effect of the diaphragm on patients receiving abdominal exercises during their period of pneumoperitoneum, and to determine, by the use of a control group, whether or not a *minimal* abdominal exercise program would assist the patient to maintain muscle tone to the extent that the air would be displaced upward rather than outward.

The experimental design was as follows: all patients, between the ages of 20 and 40 years, who were to receive pneumoperitoneum for the first time in the treatment of their tuberculosis, were referred to the physical therapy section for orientation. Such data as height, weight, age, sex, along with girth measurements were recorded. Girth was measured at a line circling the transpyloric plane, the umbilical plane, and the transtubercular plane as described in *Gray's Anatomy*. The patients were then randomly assigned to one of three groups:

Group I, patients received abdominal exercises once daily for a period of five months;

Group II, patients received abdominal exercise instruction once weekly, with

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the admonition to perform the exercises daily in their own cubicle, for a period of five months;

Group III, patients received no exercise but served as the control group.

(The exercises which were used have been described previously in a preliminary paper on this subject.) All these patients, following physical therapy orientation, were then sent to the Radiological Service where radiograms on the anteroposterior and lateral lumbar spine to include both diaphragms were taken. Soft tissue technic was used, and body surfaces were marked with lead to give the Radiologist measuring points. At the end of five months all patients were measured again.

From October 1951 to June 1953 there were 89 patients referred to the physical therapy section for orientation preparatory to initial induction of pneumoperitoneum. Sixteen of these were rejected because they had previously received air elsewhere or were over the arbitrary age limitation of 40 years; 73 were oriented and referred for roentgenograms. Of these 73 patients only 39 survived five months of study—34 were lost to the study because of changes in clinical status, refusal of the patient to continue exercising, or to hospital dispositions. There were 37 men and 2 women participating in the study as patients.

RESULTS OF THE STUDY

Table I gives the average characteristics of the total group of 39 cases before induction of pneumoperitoneum and five months after induction. It can be seen that the total group increased in weight and in girth as measured, and the diaphragms *were* raised (a lower diaphragm-level figure indicates a higher rib-level).

Table II gives the means and standard deviations for each of the three experimental groups in terms of the amount of change that occurred between the time of induction and the measures taken five months later. Again, it can be seen that within each group there was an increase in weight and girth, and a decrease in the diaphragm-level measures.

In order to determine that the experimental groups were comparable, an analysis of variance was computed on the pre-induction measures, including weight. The variance between the groups was not significantly greater than the variance within the groups, so the null hypothesis of no difference between the groups was sustained, leading to the conclusion that the groups were comparable in these respects.

TABLE I

Total Group (39 Cases) Characteristics: Means

	Pre-Induction	*Post-Induction*
Age (years)	28.5	—
Height (centimeters)	176	—
Weight (pounds)	149	154
Circumference (cm)		
transpyloric line	81.0	87.0
umbilical line	80.5	86.5
transtubercular line	82.5	86.0
X-ray, PA Chest (cm)		
transpyloric	33.0	35.0
umbilical	32.5	34.0
transtubercular	33.0	34.0
X-ray, lateral (cm)		
transpyloric	25.5	29.0
umbilical	24.0	28.0
transtubercular	23.5	27.5
Diaphragm level:		
reclining		
right	8.7	7.6
left	9.0	7.9
vertical		
right	10.0	9.2
left	10.2	9.6

In order to determine the effects of the experimental variable of daily and weekly exercise instruction, three analyses were carried out. First, an analysis of variance was computed on the three experimental groups on all measures. This analysis sustained the null hypothesis that the variance between groups was not greater than the variance within groups. This was equally true of the weight measure, so it was concluded that, although the patients increased in weight on the average, the increase was relatively constant throughout the three groups, and thus the three groups were comparable at the end of the five-month experiment relative to weight.

Next, an analysis of variance was computed on the differences between the pre-induction measures and the final measures. Again, the null hypothesis was confirmed.

Finally, critical ratios were computed between the means for Group I (daily exercise) and Group III (control). No significant differences between the means were discovered.

DISCUSSION

From these results it can be concluded that, within the limits of this experiment, the effects of exercise upon patients receiving pneumoperitoneum are negligible in controlling girth and in raising the level of the diaphragms. It should be noted, however, that the phrase, "within the

TABLE II

Extent of Change in Group Measurements between Pre-Induction and 5 Months Measures.

	Group I		*Group II*		*Group III*	
	Mean	S.D.	Mean	S.D.	Mean	S.D.
Weight (Pounds)	4.77	10.20	4.38	6.31	4.54	10.67
Circumference (cm)						
transpyloric line	7.15	3.72	6.46	4.30	4.69	4.50
umbilical line	5.85	4.58	5.62	4.32	5.77	4.15
transtubercular line	3.23	5.25	3.62	4.00	3.62	3.81
X-ray, PA (cm)						
transpyloric	1.46	1.17	1.85	.94	1.54	1.57
umbilical	1.69	.99	1.92	1.37	1.38	1.50
transtubercular	1.15	.94	1.46	1.17	1.08	1.31
X-ray, lateral (cm)						
transpyloric	3.46	1.44	3.31	1.87	3.46	1.51
umbilical	4.23	1.60	4.38	2.35	4.08	1.92
transtubercular	4.15	1.03	4.54	2.39	4.31	1.87
Diaphragm level:						
reclining						
right	−1.08	.63	−1.23	.81	−.77	1.12
left	−1.50	.93	− .81	.69	−.92	.63
vertical						
right	−1.15	.44	− .65	.54	−.54	.72
left	− .96	.72	− .62	.43	−.42	.56

limits of this experiment," is extremely qualifying. First, the number of cases in each group (13) is so small that only small sample statistical procedures can be used in analyzing the results. As can be seen from the size of the standard deviations, the intragroup variance was quite large and could effectively mask the intergroup variance where so few cases are involved. It was for this reason that the critical ratio technic was used between the (hypothesized) extreme groups, but again the large standard error of the means was effective in masking any difference that might have been present.

Another consideration is the nature of the measurement of diaphragm level. Measured as it was, the amount of error present was plus or minus ⅜ to ½ inch (the estimated thickness of a rib at the level of the diaphragm is ¾ inch, and of the rib space ¾ to 1 inch depending upon the person). As can be seen from table II, the extent to which the diaphragms were lifted *appears* greater for Group I, less for Group II, and least for Group III; these amounts of change do not even approach statistical significance with so small a number of cases, but *might*, at least, *suggest a trend.*

Although the figures on this study were statistically insignificant, we feel that the research was not wasted, for it served as an exploratory pilot study. From it we learned that we needed a much larger number of cases and that a matching technic on the crucial variables would provide more stringent limitations. Because the chance trend that appeared in the exercise group prognosticated that the rise of the diaphragm seemed to be higher and the girth at the transpyloric line appeared to be greater, our working hypothesis is that patients receiving exercises as adjunctive therapy with pneumoperitoneum *will* have a greater rise in their diaphragm with a corresponding increase in girth at the transpyloric line. Consequently, patients will have a smaller lung volume which will assist in providing maximal rest of the involved lung.

To test this hypothesis, the study is being continued with the following experimental design. Only two groups will be used: the exercise group which will receive supervised activity twice daily, and the nonexercise group which will serve as a control. Greater selectivity of patients will be made by matching age, height, weight, and sex between the two groups. Each patient will be recalled at 90 days and 150 days from the date of his initial induction for repeat roentgenograms. Three consecutive films will be made from which measurements will be taken to establish reliability. Planimetric pulmonary area measurements correlated with pulmonary volume will be made which will more nearly approach the physiological function of the individual patient. By means of such data it will be possible to compare the initial status of the patient with

reference to a later status in conformity with our working hypothesis.

The above chance trend plus some interesting but nonessential facts which evolved from this study lead the investigators to continue. In a cursory follow-up survey of the three groups within five months following the five-month study, it was found that, in each of the three groups, 15 per cent of the patients left the hospital against medical advice. In Group I, 7 per cent remained in the hospital, and 78 per cent were discharged as hospital treatment completed or maximum hospital benefit. In Groups II and III, 46 per cent remained in the hospital (within this 46 per cent, 50 per cent were recommended for surgical intervention), and 39 per cent were discharged as hospital treatment completed or maximum hospital benefit.

Since the inception of the second phase of this study began July 1953, there has been a total number of 17 patients referred to the physical therapy section for inclusion in the research problem. This would indicate that Phase II of the problem will be quite prolonged in order that a sufficient number of selected cases may be secured for study.

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A Review of Relaxation

Herbert H. Jones

INTRODUCTION

Relaxation is not a new concept that has been developed in medicine over the past twenty or thirty years. It is one of the original methods of treatment employed by primal man who used the heat of the sun and the water of the stream together with relaxation—in the form of rest—as he hid from his enemies until the wounds of his body had healed.

Today relaxation is needed as never before. Dr. Flanders Dunbar, an authority on psychosomatic medicine, writes, "The inability to relax is one of the most widely spread diseases of our time and one of the most infrequently recognized." Man, physically, is no different today than he has been, but he is now buffeted by a constant tension-producing series of events. In addition to the effects of highly specialized work the ordinary everyday occurrences such as, the blaring of radios and horns, the pushing and shoving of masses of people, and even the cramming of our feet into ill fitting shoes are tension producing. No wonder we are tense and nervous, anxious and upset. We gulp down our meals in a matter of minutes in order to rush to do something else. These muscle tensions are reflected in the way that we walk and sit, in the lines in our faces, and by the pitch and volume of our voices.

A basic treatment, used by physicians for centuries, is rest. But the word rest has different

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connotations: to one man it means complete collapse in bed; to another it means taking it easy for a few days; and to another it means just a change of activity. Rest in bed is not always the curative agent it is thought to be, for it is perfectly possible to lie in bed apparently fairly still, yet with a substantial degree of muscle tension throughout the body. It is likely too, that sleep is not always accompanied by anything approaching complete relaxation. Dr. Edmund Jacobson states: "Relaxation is not a method of suggestion, it is a method of education." Therefore, it may be necessary for a person to be taught relaxation. Controlled laboratory experiments have been conducted using muscle action potentials to prove that relaxation can be learned. Training permits the process known in physiology as facilitation to occur, so that in practice a state of relaxation can be quickly attained when it is desired or needed.

Relaxation should be the keystone of treatment of the patient by the physical therapist. It should not be considered a separate entity, but should be used in conjunction with other forms of treatment at all times. The beneficial effect of any other form of specifically prescribed physical therapy will be reinforced if relaxation procedures are taught to the patient and used in conjunction with the specific treatment. For example, posture and walking retraining are phases of treatment in which instruction in relaxation is as important as the specific posture and walking instructions. It is a matter of everyday observation about posture that contraction is often maintained unnecessarily in muscles which are not being used. The concept of economy of muscle contraction is, "nothing contracted in excess of what is required."

METHODS

There are various methods of teaching relaxation to a patient, but no one system is considered perfect or should be used to the exclusion of all others. Technics should be selected from among the various methods and modified to fit the particular patient receiving treatment. The method most widely known and used is the progressive and differential relaxation technic of Dr. Edmund Jacobson. He suggests the creating of tension in a muscle by voluntary contraction in order that the patient may become aware of the feeling of tenseness and be able to differentiate between a feeling of tenseness and a feeling of relaxation. This is a practical method of relaxation that is easy for the average patient to grasp. Dr. Jacobson minimizes the importance of the attention or mental-set factors, as he feels they are tension producing in themselves. Instructors occasionally add the suggestion of imagery in their directions to patients, and have them think of themselves as rag dolls or wet dish rags. Imagery, when working with mentally disturbed patients, is discouraged by some authorities. Dr. David Fink suggests that the patient say out loud, "I am limp all over," while practicing relaxation.

Another method used to induce relaxation is to have the patient think leisurely about beautiful thoughts, pictures, or happy peaceful incidents. This technic may be used to a moderate extent, but care must be taken that is not overdone. Patients strongly inclined to introversion should abstain from using it entirely.

The technic of unidirectional attention has been suggested. By this method the patient is instructed to focus his attention on one thought or one thought image, but not to make the attention vivid. It is not the image but the quiet attention to it that is the important part of this system.

The Hindu doctrine of quiescence is advocated by some authorities. This routine has many ramifications, but the physical therapist may adopt the portion that suggests there be no tensing of the muscles by the patient, no asking the patient to be aware of tension, but has the patient perceive the muscle as it is and then let it go—relax. Advocates of this system claim that it is not good practice to encourage relaxation by a preliminary contraction. Relaxation should start from the position the part already occupies and should proceed directly toward the goal of absence of contraction. Mental-set or association may be used with this method by having the patient repeat a word that has a pleasant connotation such as, *quiet, peace, calm*. This results in developing a conditioned response so that whenever that same word is repeated it will induce relaxation.

Yawning, stretching, breathing, and relaxation exercises can also be used. Stretching and yawning is one of the less involved methods of relaxing. If circumstances do not permit the patient to participate in a course in relaxation, this system may be offered and demonstrated to him in a few minutes, as he may have neither the time nor the patience to practice full relaxation everyday.

A method of relaxing by suggestion, employing the use of phonograph records, is available. Although inadequate by themselves, these records may be used at home by the patient in conjunc-

tion with other systems of inducing sleep or relaxation.

PROCEDURES

Relaxation is not an easy subject to teach and much effort is required from both the physical therapist and the patient. The physical therapist must have patience and understanding and it is essential to establish good rapport with the patient yet at the same time maintain emotional detachment. For the patient it is a slow process of learning a skill that may take a long period of time to develop. If the patient says that it is difficult for him to relax, the instructions are not being followed correctly. It is a concept that may be difficult for him to grasp but should require no effort for him to perform. As one authority (Garmany) states, "the method is often taught incorrectly relying to an undue extent on exhortation rather than on precise demonstration and training in what is required."

Occasionally, a patient will deride the suggestion of learning to relax. You cannot force a person to relax; therefore, it is wise to make perfectly clear to him that the physical therapist's function is to teach the method, but that whether it is learned rests almost entirely with the patient himself. Much time and effort will be saved if care is taken to accept for treatment only the patient able and willing to devote himself to acquiring the necessary skill. He must be receptive to the idea of relaxing if he is to derive benefit from the treatment. A patient may be dubious of the benefit of relaxing but if he can be persuaded to try the program for a short time it may sell itself to him. The patient's most common excuse for not using relaxation procedures is that he doesn't have time. In such cases it is wise to point out to him some of the spare minutes that add up to hours which he could make use of. He can learn to relax while washing his hands or brushing his teeth, while waiting to talk on the telephone, when driving to and from work, and while waiting for the traffic light to change. Remind him of the time available while reading, while watching television, listening to the radio, eating meals, or watching a movie.

Some people of an active nature may, at the beginning of the course, set up a psychological type of resistance toward the practice of relaxation because they are not prepared to meet its demands. It frequently happens that the patient experiences an increase of tension when first beginning the training. Other patients may try too hard to learn to relax and should avoid the trap of becoming tense about producing relaxation. Perhaps they are acquainted with the numerous articles that have been published in some of the popular magazines and are afraid of the consequences of not being able to relax. To them, Dr. Jacobson gives this paradoxical advice, "Do not try to relax! Just stop trying!"

Relaxation of the mind and of the body go together. Neurologists tell us that our minds and our bodies are constantly acting upon each other. A few excellent books have been written on the psychological aspect of relaxation. These books may be of help to the average person, but to one with a personality disorder, a psychiatric problem, or a surgical or medical condition, no book by itself will impart the peace of mind that is so essential to complete relaxation. A physician, a psychiatrist, or a minister may be needed for personal conferences with the patient. Norman Vincent Peale states: "One of the most important steps in relaxation is to learn to think generously and truthfully. Thoughts of ill will, of guilt, of fear, produce tumult in the mind. On the contrary, thoughts of good will, trust, confidence, and goodness, create a spiritual calm and a bodily relaxation." This does not mean that the physical therapist can disregard the problem of psychological relaxation. A mutual understanding should exist between the physical therapist and the physician to enable the physical therapist to augment the physician's statements to the patient with supporting assertions of his own. Perhaps the patient needs constant reassurance concerning his condition and his progress, in which the physical therapist may invest a portion of the treatment time. Rapport between the patient and the physical therapist is usually good, and valuable assistance can be given to the patient to help allay his fears concerning his problems. The physical therapist should not attempt this type of work alone but should seek assistance from the physician and the minister.

Relaxation procedures have been used with effectiveness in almost all of the medical, surgical, and psychiatric conditions, with particular success in obstetrics, hypertension, gastric ulcers, chronic colitis, and anxiety tension. Pain is relieved by release of muscle tension, since muscle tension itself helps to increase the amount of pain. But, to use relaxation technics to treat any condition without previous or concurrent medical or psychotherapeutic treatment is unjustified.

THE PROGRAM AT ROCKY HILL

In the Department of Physical Medicine and Rehabilitation, Commission on the Care and Treatment of the Chronically Ill, Aged and Infirm, Rocky Hill, Connecticut, a program of training in relaxation is conducted that prepares the patient to engage in his daily activities with a minimum expenditure of mental and physical energy. The course is designed to produce full relaxation and the patient is told that what he is doing will have a practical application to the circumstances of his everyday living. One room is available for individual or group training on a scheduled basis. It is difficult to deal with more than six patients at one time. Advice and instruction are given to the group as a whole but the physical therapist must move around correcting faults individually. The treatment sessions usually are one-half hour long, but additional time is available, if necessary. There is no set number of lessons to the course of instruction. In between treatments the patient is instructed to practice alone for at least a quarter of an hour twice a day. Each patient is considered individually and progresses in the training as rapidly as the physical therapist in charge thinks that he should.

First, the program is outlined and various aspects of the subject of relaxation are discussed with the patient. The most common mistake is to attempt to explain too much. It is extremely unwise to minimize the amount of work he will have to do, but it is important to tell the patient clearly in advance what he can expect from the technic. It should be emphasized that an instrument is always at hand which will enable him to allay at attack of tension within a second or two of its manifestation. He is encouraged to discuss his progress or problems with the physical therapist at any time—other than during the instruction period. A modified form of the Jacobson technic has proved to be the most effective method of teaching relaxation although all forms of relaxation technics are utilized as indicated. Preliminary instruction is given the patient in a supine position on a comfortable bed with emphasis on his positioning and with the judicious use of small pillows or other forms of support. At first the room is in semidarkness with a minimum of extraneous disturbance. Without further adjustment the patient should be encouraged to relax his body as it is. He should further understand that relaxation is not dependent on comfort. The use of artificial relaxation aids only complicate training. All but the acutely ill in mind or body respond to the above situation. When patients fall asleep in the middle of the exercises it is a false satisfaction to the physical therapist. This should be avoided since it cannot replace the exercises and it is possible to sleep while in a state of considerable muscle tension. The next progression is an attempt to have the patient relax in a brightly lighted room with people moving about where noises and other forms of distraction are present.

During the training period he is tested to be sure that the extremities show no resistance to passive movement and the muscles concerned are soft and lacking in tension when palpated. Relaxation while sitting, walking, climbing stairs, working, and driving, is taught in sequence when the previous lesson has been learned by the patient, and the physical therapist is satisfied with his progress. When the physical therapist is of the opinion that the patient is proficient in all aspects of the training, the patient is examined by the physiatrist in charge of the department and the treatment is discontinued or the patient is referred for additional training if needed.

As a result of this program, patients carry the training into their daily routine. They are enabled to indulge in ventures that previously had been curtailed due to the demands placed upon their physical condition by the activities. Foremost in the group are patients with heart disease and tuberculosis.

Case Reports

Case 1 D.S., age 57. Pleasant personality, neat, no bad habits. Physical condition normal for age. Holds Ph.D. in Bacteriology and has taught school for 14 years. When he had a job, nervous tension developed steadily until he had to resign or be granted a leave of absence. Admitted 1948. In addition to adjunctive occupational therapy, relaxation training was instituted. After a period of 5 months he was able to work steadily in technical phases of laboratory work in a hospital for 3 years. In 1951 he was readmitted and relaxation technics repeated with concomitant psychotherapy. This treatment has enabled the patient to continue his work in the hospital. He states, "what I learned in relaxation class has kept me going all these years."

Case 2. M.T., age 40. Former bus driver admitted with diagnosis of cardiac neurosis and duodenal ulcers. Treated with graded exercises to develop physical tolerance (or rather to build up his acceptance that he had physical tolerance), also sedative occupational therapy, vocational retraining, and training in relaxation technic. Over

a 3-month period he was able to learn to carry over the relaxation technic into daily activities. He returned to his job in a less active capacity and reports that he is now able to sleep the entire night, where previously he awakened 7 to 9 times nightly.

SUMMARY

1. Some of the methods of teaching relaxation have been reviewed.
2. The training program at the Commission on the Care and Treatment of the Chronically Ill, Aged and Infirm, Rocky Hill, Connecticut, has been outlined.
3. Two cases have been briefly reviewed to show ability of patients to live a full and a longer life because of the training received from this program of relaxation.

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A Picture of Your Favorite Patient

Every physical therapist has his favorite patient—maybe two or three. Perhaps your favorite is a little girl, with long curls and an angelic smile. Is there a pre-teen-ager with an impish grin and an endless line of chatter that brightens up your work day for you? Or is your favorite patient an older person, whose determination to overcome his disability makes you glad to be able to help him.

As this favorite patient of yours progresses in his rehabilitation program, you share his pride and joy in each new achievement. This is part of the satisfaction of your profession, and that satisfaction is one of its biggest selling points. If you were to try to put into words your feeling of satisfaction and pride, you might find it embarrassing. But a picture of you working with your patient will tell the story without a word being said.

The American Physical Therapy Association needs good pictures of this kind for publication in brochures, exhibits, etc., in order to interpret to young people some of the advantages of a career in physical therapy. That is why the "What-Does-A-Physical-Therapist-Do?" photo contest is being conducted. The prize winning photographs from this contest not only will make their owners financially richer, but they will be reproduced in booklets, posters, and other publications in an effort to persuade qualified young people to enter physical therapy as a profession.

You don't have to be a photographer yourself in order to enter the contest. Perhaps there is someone else in your department, or in the public relations and publicity department of your hospital, who likes to take pictures and with whom you can collaborate. Amateur photographers' clubs are always eager for subjects and may be a possible source of excellent pictures. If there is a photography class in a college or adult education center in your community, why not talk with the instructor to see whether the class might be interested. Newspaper photographers are rarely so well-paid that they would scorn a $50.00 first prize, which is being offered in the competition plus five additional prizes of $5.00 each. There may be photographers or relatives of photographers among your patients.

You and your favorite patient can give a big boost to the recruiting effort for physical therapists by posing for pictures which will answer the question, "What does a physical therapist do?" The contest closes December 15, 1954. Reprints of the contest announcement, which appeared in the October, 1954, *Review*, as well as official entry blanks, may be secured from the American Physical Therapy Association, 1790 Broadway, New York 19, New York.

Rules for the contest are as follows:

1. Each picture must be accompanied by an official entry blank which includes a publication release form to be signed by individuals pictured (or parents or guardians of such individuals). Entry blanks are available from the American Physical Therapy Association.

2. Physical therapists appearing in the picture must be members of or eligible for membership in the American Physical Therapy Association.

3. All entries must be 5 x 7 black-and-white glossy prints.

4. All entries must include the original negative as well as the print.

5. All entries become the property of the American Physical Therapy Association. None can be returned.

6. The decisions of the judges will be final.

7. Contestants may enter as many pictures as they wish. Each picture must be accompanied by an official entry blank.

8. Entries must be postmarked not later than December 15, 1954.

9. Only pictures which have not been previously published in any form will be accepted.

10. The APTA triangular patch should be clearly visible on the uniform sleeve (right or left) of physical therapists shown.

Pamphlets on Cerebral Palsy

United Cerebral Palsy of New York City, Inc. announces two new publications for distribution.

"Cerebral Palsy — A Social Problem" is the proceedings of a symposium conducted by United Cerebral Palsy of New York City, Inc., in cooperation with the Study Group of Social Workers in Cerebral Palsy.

"Vocational Placement of the Cerebral Palsied" reports a brief experience in dealing with the vocational problems of 200 cerebral palsied adults.

Single copies of these and other publications may be obtained by writing: United Cerebral Palsy of New York City, Inc., 47 West 57th Street, New York, 19, N. Y.

Editorials

THERE appeared in the September issue of the *Review* the series of annual reports customarily given to the members by the officers, committee chairmen and National Office staff. These reports represent, in a sense, both a stocktaking and a projection of plans and activities proposed for the future. They are without doubt one of the most factual and positive answers to the question of what the APTA does for its members, both individually and collectively, and as such should be carefully studied by every member. It is an impressive record covering a vast number of projects and accomplishments, all of which have been significantly instrumental in improving the status of both the profession in general, and physical therapists in particular.

It would be impossible to comment briefly on even a small number of these reports and adequately indicate the importance each holds for us as members. Actually, each record is self-explanatory in relation to the achievements and the proposed activities in which the various working groups are engaged. We would be presumptuous to attempt to add further praise or credit for what is so obvious to the reader.

The record of accomplishment is clear, but there is another facet of these activities which is deserving of special consideration. The fact that is so frequently forgotten, although it is perhaps the most significant aspect of the entire foundation of our organization, is the fact that most of the effort, work, planning and eventual realization of these objectives is being done by physical therapists who already hold full-time, responsible positions. It is the fact that we have people deeply enough concerned for the general welfare of the profession that has created the strong Association we have today. The APTA is not a superimposed unit which sets up regulations, directs projects and "polices" the working membership. It is rather the *result* of an organized effort on the part of each individual and the total accomplishment can never be more than the sum of what each member does.

Certainly we can and must delegate some responsibility, but the fact remains that you as a member are the ultimate factor which determines progress or lack of it. You do not belong to the Association, the Association belongs to you and only your efforts can sustain it. What the APTA will do for you is directly proportional to what you do for the APTA both locally and on a national scale. These annual reports present us with concrete proof of what can be accomplished by a relatively small percentage of the total membership. The activities of chapters and the part each plays in our professional growth is yet another indication of the success of individual effort. What we have accomplished is good but the potential has hardly been touched for what may yet be accomplished.

As an individual you may think that your contribution is small and ineffectual, but nothing could be farther from the truth, a fact that has already been evidenced by past accomplishments. The hallmark of a profession may be said to be borne by those of the profession in the manner in which they labor for the profession—and physical therapy is no exception.

Association Activities

One secretary's answer to a member who questioned the value of his membership.

August 24, 1954

Dear Mr. ———:

A letter from the National headquarters informs me that you wish to resign from the Association on the basis that you see no reason for belonging. That is honesty to be admired. You courteously offer, however, to consider any constructive reasons we are able to present. No organization could request a fairer challenge than this.

It is a pleasure to answer you, for all of us should pause now and then to examine our beliefs.

You realize, sir, that you have asked a basic question which goes far deeper than a mere listing of whys and could-be's; therefore, I trust you will bear with me if I touch on ideas you are well acquainted with in order to give you as complete a concept as possible.

To understand why you individually should belong to an organization, you must understand why the organization itself exists. For a springboard, I shall take a phrase from your letter: "belonging to an organization which represents my profession." Mr. ———, the American Physical Therapy Association is not *an* organization, but rather *the* organization which nationally represents your profession. It is the *only* organization which the majority of your professional fellows have selected to represent them. That is one reason why it exists today, but that only speaks for its current life. There is a more basic reason for its existence and the answer to that lies in your words "represents" and "profession."

You must now examine your concept of the word profession. For example, you might compare "trade" and "profession" as I briefly set forth my next points. A line of work becomes a profession when its practitioners set up a code of conduct (ethics) and a standard of performance (educational preparation and practical application). This code of conduct and standard of performance presupposes a sense of responsibility and service to mankind beyond the mere demands of work. A profession is a justifiably proud body because it serves mankind; however, the setting up of a professional body, no matter how worthy or how proud, is no guarantee that it will survive let alone grow. The profession must be interpreted to those it will serve and must be important to those who will use it. A profession must be recognized, accepted, and respected. Thus it needs a voice. To grow, it must expand. If it spreads over a nation or a world, it needs a central voice which can speak to the world. You interpret your profession locally; however, the interpretation is only as valid as your performance and as far reaching as your influence. You may be the acme of physical therapy, yet if the man in the next state opposes your abilities, he will nullify your interpretation. Nationally, your interpretation fails and your profession suffers. Thus a central voice is needed to receive the ideas, desires, and principles of all people in a profession so that the profession can be correctly stated to those who practice it, those who use it, those it serves.A profession grows by being questioned from without as well as from within, the birth of ideas, the improvement of technics, the expansion of services. A central voice acts as a receiving pool for all those principles and passes them on to you so that you may benefit from the achievements and mistakes of members in areas beyond your reach. The APTA is the central voice selected by the greater majority of physical therapists. It is *the* only organization which nationally speaks for your profession. Thus it is a professional responsibility to belong to it.

You see, Mr. ———, it is the work and growth in prestige of this organization that is largely responsible for your ability to say you *have* a profession!

That, to me, is reason enough for belonging to the APTA. To sit back now and say "I am safely established in a secure profession and see no reason for supporting its central organization" is the same as egotistical Tommy Tucker. He was the lad who stuck his thumb in the pie, pulled out a plum and said "what a good boy am I" without crediting the pie baker or whoever put the pie before him.

Nevertheless, Mr. ———, I realize that all people are not satisfied with abstractions or intangibles. Should you be one of the more materialistic people, you would prefer concrete reasons. Therefore, let us discuss reasons closer to some peoples' hearts and indeed closer to their pocketbooks.

The American Physical Therapy Association is composed of fifty-eight chapters representing 6,506 members. These members gather in chapters and state their opinions, principles, and desires. This information goes to the central headquarters, is weighed for majority rule and goes out as national recommendations to employers, lawmakers, and the public. The result is a continual growth in:

1. salary scale
2. civil service status
3. military status
4. personnel policies
5. plant improvement
6. standards of education
7. recruitment
8. interstate prestige
9. professional growth
10. state legislation
11. pooling of ideas and resources for technical perfection

The APTA needs you, Mr. ———; but no worse than you need it if you possess professional responsibility and conscience.

This, Mr. ——— is why you should belong to the American Physical Therapy Association. I grant you that on the larger professional scale you will not suffer if you resign. Being a member of the profession, you will benefit from all the major accomplishments of the organization; but I think you will admit that this is a rather selfish and immature attitude toward your profession. You understand that if every member felt as you did, there would be no organization—and perhaps in fifteen years no profession.

Incidentally, sir, the state license you speak of is yours because the APTA gave it to you. You see the five California Chapters banded together, worked ten years, and spent $4,000 to get you that license. It could be worthless in another four years if proper protection is not maintained in the form of strengthening legislation.

I thank you for your patience if you've read me through, Mr. ———. If not, I'm sorry; because I considered you worth six hours of my unpaid time.

Sincerely yours,

IRENE GILBERT
Corresponding Secretary
Northern California Chapter

Extra

Word has just been received that Lt. Col. Harriet Lee has been appointed Chief, Women's Medical Specialists Corps, U. S. Army.

As of November 1, it will be Col. Harriet Lee. Congratulations to our former president upon this recognition and honor.

Physical Therapy Fulbright Award

Theresa Anastasia, Northwestern University '43, a member of the staff, Department of Physical Medicine and Rehabilitation, New York University-Bellevue Medical Center, received a Fulbright award as a visting lecturer in physical therapy for the University of Rome.

She will help establish a rehabilitation center for children and a school for physical and occupational therapy.

Sixth World Congress International Society for the Welfare of Cripples

More than 700 persons from 36 countries participated in the Sixth World Congress held in Scheveningen, Holland. Dr. Howard Rusk, Director of the Institute for Physical Medicine and Rehabilitation, New York University-Bellevue Medical Center, was elected President.

Proceedings of the Congress will be available at a later date. Announcement of their availability will appear in the *Review*.

October Omission

We regret that the name of Dr. Wilton Marion Krogman was omitted from the list of October book reviewers. Dr. Krogman, who is Professor of Physical Anthropology, Graduate School of Medicine, University of Pennsylvania; and Director, Philadelphia Center for Research in Child Growth, Graduate School of Medicine, has reviewed a number of books in his specialty for the REVIEW. We are indebted to him for his thoughtful observations and penetrating analyses.

Word has been received of the death of a former member, Mrs. Carol DuBoos Walker. Mrs. Walker who was a member of the Association from 1945 until 1951 received her physical therapy certificate at Brooke General Hospital and was later employed at the Children's Hospital in Los Angeles. At the time of her death, October 17, 1953, she was employed at San Pedro, California. She is survived by her husband and two children.

At the 1954 Conference Banquet

PAST PRESIDENTS

Standing, Helen Kaiser, Hazel Furscott, Marguerite Irvine, Catherine Worthingham, Sarah Colby. *Sitting*, Mary Clyde Singleton, Sue Roen, Edith Monro.

Right. Peggy Lee "wows" the guests at the Conference banquet.

Marriages

Audrey Alter of Madison, Wis., to Robert Schmidt, Madison

Yvonne Bordegaray of San Francisco, Calif., now Mrs. Yvonne B. Wells, San Francisco

Frances E. Case of Baltimore, Md., to Harry D. Miller, Baltimore

Joan Lindberg of Western Springs, Ill., to William L. Deardorff, Evanston, Ill.

Barbara McCall of West Hartford, Conn., to John McCoy, East Hartford, Conn.

Lucy K. Mitinger, of Philadelphia, Pa., to William R. Cress, Charleston, S. C.

Hazel L. Nolan of Shreveport, La., now Mrs. Hazel N. Smith, Baton Rouge, La.

Louise A. Torp of Camp Carson Colo., now Mrs. Louise T. Redman, Stillwater, Okla.

Summary of the Minutes of the House of Delegates
American Physical Therapy Association
Thirty-First Annual Conference

The opening session of the House of Delegates of the American Physical Therapy Association convened in Los Angeles, California, at the Statler Hotel on June 29, 1954, at 9:00 A.M., with E. Jane Carlin, Speaker, presiding.

After the call to order by the Speaker, greetings were read from Gertrude Beard and Marjorie Fish, Executive Director of the American Occupational Therapy Association, expressing their good wishes for a successful conference.

The roll was called by the Secretary and, a quorum being present, the House proceeded with the business of the session. The following committee was appointed to edit the minutes: Dorothy Voss, Dorothy Graves, and Clara Arrington.

Dorothy Graves, Chairman of the Program Committee, presented the Conference Program as a report from that committee and it was accepted.

The report of the Committee on Nominations was given by Louise Bailey, Chairman, who introduced the nominees for the various elective offices and Nominations Committee. The Speaker then called for nominations from the floor. None were presented. Tellers appointed to serve for the election were: Beatrice Whitcomb, Chief Teller; Ruth Benz, and Elizabeth Fellows.

The reports * of the officers were read in due order. The report of the Committee on Education was read by Frances Ekstam, member of the Committee serving as Chairman in the absence of Lorraine Lake. Hazel Stephens, Chairman of the Exhibits Committee, presented the report of that Committee.

Vice-President Nesbitt took the chair and asked for the report of the Publications Committee presented by E. Jane Carlin, Chairman. Having presented her report, Miss Carlin resumed her position as Speaker and called for the reports of the Committees on Public Laws and Relations.

The National Office staff presented reports summarizing the year's activities in the various divisions following which Mildred Elson, Executive Director, gave her report as coordinator of the Association's activities.

Following instructions by the Speaker as to the rules of elections, the first session was adjourned at 12:00 noon.

* See Annual Reports in the September issue of the *Physical Therapy Review*.

The second session of the House of Delegates opened at 2:00 P.M., on June 30, 1954, with the Speaker reading the Report of the Awards Committee of the Chapter Exhibits. The Colorado Chapter was awarded first prize in the General Information Section and the Northern California Chapter received first prize in the Scientific Section. In all categories, first prize was awarded to Northern California, second prize to Colorado, and third prize to the District of Columbia. Louise Bailey, Eugene Taylor, and Catherine Worthingham served on the Awards Committee.

The first item of new business was the reading by the Secretary of the Summary of the Minutes of the Annual Meeting of the Executive Committee.

The Speaker requested the report of the Chief Teller, Beatrice Whitcomb, who read the election results as follows:

President, Mary Nesbitt; Vice-President, Lucille Daniels; Secretary, Dorothy Graves; Treasurer, Dorothy Hoag; Speaker, E. Jane Carlin; Directors, Harriet Lee, Sarah Rogers; Nominating Committee, Ruby Decker, Florence Linduff, Dorothy Voss.

The remainder of the session was devoted to the amendments to the Bylaws. The following amendments pertaining to Bylaws were adopted:

Certificate of Incorporation, Section 2. As proposed.

Bylaw II, *Section 1, Functions,* as proposed with the addition of:

(g) "To promote scientific research in physical therapy."

Bylaw III, *Section 7, Restoral to Membership,* as proposed.

Bylaw IV, *Section 3, Revocation or Suspension of Charter*

(a) "Fails to conduct disciplinary proceedings or to investigate charges preferred against its members and refer the same to the Judicial Committee of the Association as provided by these Bylaws."

Section 4, Limitation, (c), as proposed.

Bylaw V, *Section 1, Officers Listed,* as proposed.

Section 5, Duties of Board of Directors

(a) "The Board of Directors shall carry out the mandates and policies of this Association including those determined by the House of Delegates."

Section 7, President, (*a*), (*b*), (*c*), as proposed.

Section 8, Vice-President, (*a*), (*b*), (*c*), (*d*), as proposed.

Section 9, Secretary, (*a*) *through* (*f*) as proposed.

Bylaw VI, *House of Delegates, Section 1, General Powers.*

"All legislative powers and authority to determine policies of the Association, including the power to amend and repeal the Bylaws and to adopt or amend a code of ethics to govern the professional conduct of members of the Association, are vested in and reside in the House of Delegates. The House of Delegates shall elect the officers and directors of the Association."

Section 10, Reports of Officers, strike out, as proposed.

Bylaw VII, *Sessions and Meetings, Section 1, Sessions of the Association,* as proposed.

Section 2, General Meeting, as proposed.

Section 3, Sessions and Meetings of the House of Delegates, as proposed.

Section 4, Parliamentary Authority, as proposed.

Bylaw VIII, *Section 1, Purpose; Section 2, Creation; Section 3, Structure; Section 4, Dissolution,* as proposed.

Bylaw IX, *Finance, Section 1, Fiscal Year, Section 2, Supervision,* as proposed.

Section 3, Expenditure of Appropriations. Editorial change, "Unexpended balances remaining in the budget allotment at the end of the fiscal year shall revert to the General Fund."

Bylaw X, *Physical Therapy Review, Section 1, Name, Section 2, Editorial Board,* as proposed.

Bylaw XI, *Standing Committees, Section 1, Names; Section 2, Required Reports; Section 3, Conference Program; Section 4, Finance; Section 5, Judicial; Section 6, Nominations,* as proposed.

Bylaw XII, *Ethics and Discipline, Section 1, Code of Ethics; Section 2, Disciplinary Action,* as proposed.

The session was adjourned at 5:00 P.M.

The closing session of the House of Delegates opened on July 2, 1954, at 2:00 P.M., with a report on corrective therapy given by Mildred Elson. The report included a review of the establishment and development of corrective therapy in the Veterans Administration, which indicated that the corrective therapists were not being utilized as originally envisioned. Reference was made to recent Technical Bulletins of the Veterans Administration describing the duties of physical therapists and corrective therapists which showed considerable duplication and overlap. It was noted that the Executive Committee and the National Office staff were cognizant of the problem in the Veterans Administration as well as in civilian installations and had discussed it thoroughly and sought advice from the Advisory Council members and others regarding action. The Executive Committee, she stated, had recently reviewed the subject in response to a request from the Virginia Chapter and in the conclusion of its communique to the chapter wrote, "to effectively demonstrate why physical therapists should perform certain jobs and not someone else is to have enough physical therapists and have them fully prepared to do the job so that they feel secure; to assume as individuals and collectively responsibilities for our profession; to participate willingly and cooperate fully in efforts in the community and in the hospital; to meet the needs of the people we serve; and last but not least, to participate in the activities of our Association with loyalty and devotion."

The Washington Chapter presented a motion that the House of Delegates accept invitations for the 1957 Conference and make recommendations to the Board of Directors. The motion was carried and invitations were then extended by the Illinois and Michigan Chapters. As the result of a roll call vote, Detroit, Michigan, was the 1957 Conference site recommended to the Board of Directors.

Louis Brown presented the following resolution:

"Request that the Board of Directors consider the establishment of an Advisory Committee to study the problems of the full and part-time, self-employed physical therapists and that on this Advisory Committee there will be representation from the Working Committee appointed by the Self-employed Interest Group which met at this Annual Convention." The motion was put to a vote and was unanimously carried.

The Georgia Chapter proposed a resolution requesting the Board of Directors to formulate a means of evaluating the commercial exhibits from the point of view of professional standards and the evaluation of advertisements which appear in the *Physical Therapy Review.* Miss Elson explained that advertising and exhibits were accepted from firms whose equipment is approved by the Council on Physical Medicine and Rehabilitation of the American Medical Association, whose exhibits had been accepted by the American Medical Association and the Congress of Physical Medicine and Rehabilitation, and whose advertisements had appeared in their official journals. The motion to adopt the resolution was lost.

The New York Chapter expressed the desire that the Association continue to do everything ethically possible to obtain legislation that would make available commissions in the armed services for male therapists who are graduates of approved schools of physical therapy.

The Maryland Chapter presented the results of the survey conducted by them pertaining to Registry membership.

President Harriet Lee presented charters to three new chapters, North Dakota, Nevada, and Wyoming, and pointed out that there is a total of 59 chapters of the Association.

The newly elected officers and members of the Nominating Committee were then presented to the House of Delegates. President Lee expressed for the House of Delegates an appreciation for the services of the retiring Executive Committee. Mildred Elson expressed the appreciation of the National Office staff for the assistance of the Southern California Chapter in the planning and execution of the 1954 Conference. Barbara White presented a resolution "that the House of Delegates give a rising vote of thanks to the very sincere and warm hospitality of the Southern California Chapter."

There being no further business, the proceedings were adjourned at 4:40 P.M. on July 2, 1954.

CLARA ARRINGTON
DOROTHY GRAVES
DOROTHY E. VOSS, *Chairman*
Committee to Edit the Minutes

Fellowships Awarded

The National Foundation for Infantile Paralysis announces the activation of the following fellowships and travelships in the field of physical therapy. Selection of candidates was made on a competitive basis by the National Foundation's Clinical Fellowship Committee.

Physical Therapy Teaching

Yolanda Diaz, Hato Rey, Puerto Rico; Stanford University

Ronald A. Hershey, Los Angeles, California; University of Southern California

V. Joyce Lim, Los Angeles, California; University of Southern California

Rachel Lee Nunley, Greenville, South Carolina; Duke University

Melvin A. Orser, Los Angeles, California; University of Southern California

Betty J. Sanders, Oklahoma City, Oklahoma; Stanford University

Sara M. Schoppenhorst, Kansas City, Kansas; Stanford University

E. Joan Turnquist, Salt Lake City, Utah; Stanford University

Marian Williams, Stanford, California; Stanford University

Mildred L. Wood, Washington, D.C.; Duke University

Physical Therapy Travelships

Margaret O. Camp, Middletown, Connecticut; three months, observation and experience in centers in England, Denmark, France, Switzerland, Germany, Italy, Netherlands, Sweden, Norway.

Ruth Cook, San Francisco, California; two months, International Poliomyelitis Congress, Rome, and observation and study of facilities in Switzerland and Southern Germany.

Ermine R. Duccini, Fair Oaks, California; two months, study of facilities in clinics and hospitals in Italy.

persistent

hoarseness

or cough

...is one of the seven commonest danger signals that *may* mean cancer...but should *always* mean a visit to your doctor.

The other six danger signals are —Any sore that does not heal ...A lump or thickening in the breast or elsewhere...Unusual bleeding or discharge...Any change in a wart or mole... Persistent indigestion or difficulty in swallowing...Any change in normal bowel habits.

For other facts about cancer that may some day save your life, phone the American Cancer Society office nearest you, or write to "Cancer"—in care of your local Post Office.

American Cancer Society

Essentials of a Physical Therapy Department

Nearly every physical therapist has ideas or dreams about a functional but attractive physical therapy department. The Association is asked often for advice about department layouts; in addition, a revision of a Hospital Physical Therapy Department is being planned in the near future. Here is your opportunity to send in your plans to help in that revision. When you prepare them, you might keep the following criteria in mind:

1. Patient capacity of the department
2. Type of service e.g. general, children, chronic (aged)
3. Inpatient, outpatient, or both.

Plans drawn to scale showing placement of equipment, supply cupboards, etc., are preferable, together with any explanatory notes which would assist in the planning of a new department or remodeling a present one. If you feel you cannot draw to scale, list some of your ideas as to size, open or closed treatment booths (and why), equipment, and amount of space for functional activities. Maybe you have made some time and motion studies you would like to share.

This is not a contest, but an appeal for your help. Let us have your ideas and plans soon.

Members' Paper in British Journal

Dorothy Voss and Margaret Knott were the authors of a lead article in the September issue of the *British Journal of Physical Medicine* on "Patterns of Motion for Proprioceptive Neuromuscular Facilitation."

New Student Members

Charity Hospital

Peggy Cox
Emile Edwin Gautier
Winston E. Jordan
Raymond Lewis
Alfred W. Milner, Jr.
Mary Hahler
Jerry Leonard
Mary Margaret Long
Frances Peacock
Jacquelyn Robbert
Barbara Ann Farmer

University of Michigan

Ann Bartlett
Lois Dock
Patsy Ann Gibson
Carolyn Handville
Joan Kiegler
Leon Krumbholz
Delpha-Jeanne LeDuc
Nancy Magnuson
Patricia Price
Georgia Shambes
Audrey Springer
Margaret Vance

Stanford University

Joan Mitchell

Capt. Mary J. Torp, WMSC, receives congratulations from Major General Martin E. Griffin, MC, Commanding Officer of Fitzsimons Army Hospital, Denver, Colorado, after being awarded the bronze star medal.

Army Physical Therapist Awarded Bronze Star

Captain Mary J. Torp, WMSC, Physical Therapist, was awarded the Bronze Star Medal in August at Fitzsimons Army Hospital, Denver, Colorado for her work at Tokyo Army Hospital, Japan, during her thirty-month tour there. Captain Torp was cited specifically for contributing materially to the rapid rehabilitation of neurosurgical patients through the skillful application of physical therapy technics.

In addition to praising her ability to develop in her patients a new outlook on life and the will to recover, the citation reads, "She inspired cooperation and maximum effort on the part of other therapists and technicians which resulted in restoration of the health of numerous United Nations casualties."

Captain Torp is a graduate of Northern State Teachers College, Aberdeen, South Dakota, and the Army Physical Therapy Course. From 1946 to 1948 she was staff physical therapist at Army and Navy Hospital, Hot Springs, Arkansas. Recalled to active duty in 1950, she was stationed at Brooke Army Hospital, Fort Sam Houston, Texas, before going to Japan in September 1951.

Captain Torp is a member of the American Physical Therapy Association and is the author of "Poliomyelitis: Functional Progress Report of Fifty Cases Approximately Five Years Post-Onset," which appeared in the Poliomyelitis Issue of the Physical Therapy Review, July 1953.

Student Section

WELCOME

To new students of our profession—this is your Student Section. It offers a fine opportunity to exchange information, to introduce ourselves to APTA members, and to get acquainted with each other. Don't wait to be invited to contribute—send in items for publication about the interesting social and professional phases of your school career. Let us know what you would like to see published in the Student Section. This is one of the best ways to feel you belong.

MARION KROUPA, *Editor*

Apology to Northwestern University

An article on "goniometers for finger measurement" was sent by Northwestern U. to the Chairman of the Student Section. It was accompanied by excellent photographs. They were to be published in this issue. They were in a folder locked in the car when it was broken into and everything stolen. To date none of the property has been returned. The article was so very interesting we hope we shall be able to obtain another copy for future publication so that all may read and profit from it.

M. E. K.

Square Dance

With a "Promenade your gal along home; that's all there is, there ain't no more," a highly successful evening of square-dancing drew to a close.

The time and the place? March 26, at the Institute for the Crippled and Disabled, 23rd Street at First Avenue, in New York City.

Sponsored by whom, and why? The Physical Therapy students of Columbia University, in order to raise money for their gift to the Bicentennial Fund of Columbia University.

And in raising money, they scored a resounding success. Thanks to all those figures in the bright skirts and those in the colorful sports shirts, the Columbia students happily figured their gift—$60, $70, $80, yes, $90 clear profit as their contribution. Combined with last year's gift of $110, the Physical Therapy students of the past two years will present a gift of $200 to the Bicentennial Fund.

The method by which last year's class raised their gift deserves special mention, for they literally gave of themselves; each student opened his (or her) vein and gave a pint of those lovely corpuscles in exchange for $10. That's why one now hears Columbia P. T. students speak in macabre tones of the—BLOOD MONEY. This act of devotion is deemed worthy to go down in the annals of Columbia's Physical Therapy Department, but in any case, it constituted the class gift.

When the question of a class gift arose this year, many ideas were mulled over, and finally, the square dance was chosen unanimously. Under the able direction of Barbara Greenstein and Larry Raymond, class officers, plans were made and committees organized. Many students made colorful posters, a caller was contacted, tickets were printed, and each student was held responsible for selling three tickets at the admission price of $1.00.

The night of the dance arrived, and so did the square-dancers—in droves. All enjoyed the good fortune of having a topnotch caller, from whom many new steps and dances were learned, in addition to the old favorites. Dancers stepped lively in polkas and schottisches, as well as enjoying slow dancing.

It might be said that the only suffering party was the trusty coke machine; how could a mere mechanical device be expected to keep up with all those nickels pouring in from hot, thirsty dancers?

Yes, from every point of view, it may be said that it was a highly successful dance, fun and fund-wise.

And those students are mighty proud and happy about presenting their $200 gift (corpuscular or not!) to the Bicentennial Fund honoring the 200th Anniversary of Columbia University.

MARGE GREENFIELD
Columbia University

Clinical Training

With exams over and the classroom hours behind us, fluctuating between eagerness and fearfulness, we made our way into the realm of clinical training. Here was the first big test: How would we treat the patients? How would they respond to us? How much would we remember from school? What new things would we learn?

First to a general hospital—a variety of cases and treatments. We were amazed that we remembered so much and could actually apply it, and astounded by all the facets we had yet to learn. Then just as we felt we really were beginning to be more of a help than a hindrance off we went to a children's hospital. Here is another world. After setting exercise goals you entered the child's world and played games that accomplished the ends. You were mother and father at times. Then off again to a specialty, perhaps a respiratory center, and everything you've known is not enough: new exercises for breathing and chest stretching, new electrical stimulation approaches, new patient needs.

Then back to a general hospital again. Four months (or was it six?) have passed . . . just flown by . . . and training is over. We stand at the entrance to the world of Physical Therapy and think back to our mixed feelings at the start. If nothing else we have learned two things: we know we like what we've chosen to do as a career, and we know that this learning process which has begun will never end—and we will continue to grow—just as the field is growing. We, who have just finished training, enter the ranks with hope that we shall, in working well together, contribute our utmost to Physical Therapy wherever our paths may take us throughout the world. We, who are about to work, salute you!

M. E. K.

Washington University Students Visit Society for Crippled Children

One of the highlights of our junior year at Washington University School of Physical Therapy was an opportunity to visit the St. Louis Society for Crippled Children. Three of us went each week dressed in new white starched uniforms, white stockings and shoes, and student patches proudly displayed on our sleeves.

Here we watched from the inside a Red Feather Agency at work. The staff consists of outstanding physicians, physiatrists, and orthopedists from various hospitals, in addition to social workers, physical and occupational therapists, and psychologists who work full time for the Society.

We were impressed by the very modern exterior and the attractively decorated interior. There is a playground to delight the heart of any youngster and excellent occupational therapy and physical therapy facilities.

Staff meetings are held during which each patient is discussed as an individual with problems pertaining to him alone. The doctors discuss his medical history and prescribe treatment. The therapists discuss his progress and offer suggestions for further training. The psychologist presents data on his intelligence and social adjustment. The social workers describe his home environment.

Then the patient, usually accompanied by his parents, enters the room to be examined. They are fully informed of their child's abilities, progress, and future treatments.

In addition to giving us an understanding of the operations of such an organization it enabled us to see many different types of diseases. Among them were hydrocephalous, spina bifida, cerebral palsy, and polio. It was truly a broadening experience—one we would recommend for any group of physical therapy students.

JOAN EIME
Washington University

Ecole St. Vincent — Continued *

Several pairs of eyes from happy faces focused on me. I was entering the courtyard of Ecole St. Vincent in Port-au-Prince, Haiti. There weren't many children present on this hot July day as the school holidays were in session but a few sat around talking and working on handicrafts. The nurse at the main hospital of the city had directed me here when I told her I was in physical therapy training. It was a small wonder that she deciphered that amount of information from my scanty French.

A group of girl students were chattering over anatomy notes in a corner. We exchanged, "Bonjours." The Haitians are very friendly people but this American was almost speechless from a lack of vocabulary. This group seemed to me to be analogous to our study sessions in the

* (See *Physical Therapy Review*, August, 1954, p. 395.)

Saint Louis University Medical School Lounge. These students were waiting for the doctor who lectures to them in their physical therapy training.

In the main office I found Sister Joan Margaret, S.S.M. She was very friendly, never seeming to mind my numerous questions. Sister showed me the classrooms for the deaf, dumb, and blind and the treatment rooms for the crippled children. There were parallel bars, a tank for underwater exercises, a walker, and the usual collection of braces. These appliances and modalities show a labor of love in their making and give an appearance of wear and good use. It is evident that at St. Vincent's they have made the best of everything they have. I wished that I had more time to spend as there were many more things to see. I was told that the children cared for here otherwise might have been abandoned as St. Vincent is Haiti's only school of this type.

This had been for me the highlight of a vacation trip. In the States what little things I had griped about—not enough towels or a loose screw in a brace. Maybe you'll call me an emotional young student who hasn't seen enough places to judge; yet I doubt if one of us could come from St. Vincent's—student, physical therapist or physician—without the thought that here is Physical Therapy in strong dynamic action.

ROSELLA ALLEN
Saint Louis University

Army WMSC Chief to Retire

Col. Nell Wickliffe will retire from active duty on October 31 after three years as Chief of the Women's Medical Specialist Corps in the Office of the Surgeon General of the Army and more than twenty-six years of service as a dietitian in the Army Medical Service.

Colonel Wickliffe is a graduate of Winthrop College for Women, Rocky Hill, South Carolina, and the Army Dietetic Internship, Walter Reed Army Hospital, Washington, D. C. For sixteen years she served as staff dietitian and later chief dietitian and director of the Dietetic Internship, Brooke Army Hospital, Fort Sam Houston, Texas. She was chief dietitian at Walter Reed Army Hospital from 1946 until her assignment as chief dietitian of the Japan Logistical Command and dietetic consultant to the Far East Command in 1948.

For her service in Japan during the Korean conflict, Colonel Wickliffe was awarded the Legion of Merit which cited in part her effective reorganization of food service operations in hospitals throughout the command despite personnel shortages and influx of battle casualties. Colonel Wickliffe also holds the Army Commendation Ribbon, Victory Medal for World War II, and Korean Service Medal.

After three years in the Far East, Colonel Wickliffe was appointed second chief of the Women's Medical Specialist Corps in the Office of the Surgeon General. Colonel Wickliffe is a member of the American Dietetic Association, the Home Economics Association, and the Association of Military Surgeons.

The *Physical Therapy Review* on Microfilm

The *Physical Therapy Review* is available in microfilm for the years 1950 through 1953, and will continue to be issued in this form each year by University Microfilms, Ann Arbor, Michigan.

All libraries face the problem of adequate storage space, and the excessive costs of storage. It has been estimated that the cost of storing a book is 20 cents a year; and that bound periodicals, which average about 800 pages and require twice the space of books, costs 40 cents per year. A library subscribing to 500 periodicals, therefore, would have an annual storage cost of $200.00—and this is cumulative.

Some libraries have solved the storage problem through the use of microfilm which can be provided at a cost about equal to that of binding the paper copies. (Only subscribers to the journal can purchase its microfilm editions.) These subscribers usually circulate the copies unbound in the library until their period of greatest use is over, then discard the journals and substitute the microfilm.

The full year of each publication is on a separate reel in a box labeled and identified, with the index for the year (when available) at the beginning of the reel. The reels can be stored in a special cabinet near the reading machine. There are three types of reading machines suitable for use with the film. Two are designed for heavy-duty library use, while the third is more satisfactory for office and laboratory research, but has the advantage of being portable.

Over 500 journals—scientific, commercial, and professional—are now reproduced in microfilm. The cost of the *Physical Therapy Review* in this form is: Vol. 33, $2.20; Vol. 32, $2.00; Vol. 31, $1.55; and Vol. 30, $1.60. The cost is governed by the number of pages in the original issues.

General News

Massachusetts Opens Chronic Disease Hospital

The Lemuel Shattuck Hospital for Chronic diseases opened to receive patients on September 15. This hospital, located in the Jamaica Plain section of Boston, has a normal bed capacity of 600. It is designed for the medical and surgical care of patients with chronic diseases, and will serve as a nucleus for the development of prevention, teaching, and research in these diseases.

Functions of the hospital will include the following:

1. It will provide *specialized facilities* for the diagnosis and treatment of patients suffering from chronic diseases and cancer who may potentially benefit from such hospitalization. The types of cases to be cared for will be all cases of chronic illness which may be helped by medical or surgical treatment and are capable of rehabilitation. Patients will not be accepted for custodial care, domiciliary care or terminal care, but the intent is to hospitalize those patients with chronic diseases or cancer early so that the development of the progress of these diseases may be controlled and by early treatment these citizens may retain their economic usefulness to the community for as long a time as possible. Upon completion of hospitalization, patients will be referred back to their own physicians, other institutions or outpatient clinics, including the hospital's own outpatient department.
2. The hospital will serve as a *center of training* in chronic illness; that is, a teaching hospital affiliated with the three medical schools in Boston and the Harvard School of Public Health; a teaching hospital for resident physicians; and a school for practical nurses. It will also be affiliated for teaching purposes with schools of physical medicine, occupational therapy, and social service.
3. The hospital will serve as an active *center for research* in chronic diseases and cancer, as to cause, prevention and cure.
4. The hospital will have a large *outpatient clinic* for patients with chronic diseases. The utilization of the outpatient department, it is hoped, will prevent hospitalization of some cases of chronic illness and also will provide a more rapid turnover of bed patients if there is an assurance that the patients may return for regular outpatient therapy. The outpatient department will also aid in a more complete research in chronic diseases.
5. The hospital will provide a complete *rehabilitation service* for the disabled and chronically ill, including research in improved methods of rehabilitation and professional training of doctors, nurses, physical therapists and other professional personnel in this field.

National Society Holds 31st Convention

Outstanding leaders in the rehabilitation, health, and welfare fields will participate in the 31st convention of the National Society for Crippled Children and Adults, November 2-5, at Boston's Statler Hotel.

The convention theme, "Rehabilitation for Independence," will high-light the Easter Seal Society's major objective of rehabilitating the whole person for participation in everyday life at home, at school, at work and at play. Judge J. Raymond Tiffany, president of the National Society, will preside at the opening convention session, and John F. Kennedy, junior U.S. Senator from Massachusetts, will give the keynote address: "Rehabilitation, Your Job and Mine." A. L. M. Wiggins, chairman of the board of the Atlantic Coast Line Railroad Company and widely known for his outstanding work as president of the Crippled Children Society of South Carolina, will speak to volunteers of the Easter Seal Society at a special luncheon.

Other convention speakers will include Mrs. Ivy Baker Priest, treasurer of the United States and a board member of the District of Columbia Society for Crippled Children; Dr. Margaret Mead, noted anthropologist and associate curator of ethnology, American Museum of Natural His-

tory; Dr. Romaine Mackie, chief of the section on exceptional children and youth, U.S. Office of Education; Dr. Howard A. Rusk, prominent medical director of the Institute of Physical Medicine and Rehabilitation, New York University-Bellevue Medical Center; Dr. William C. Menninger, general secretary of the Menninger Foundation, Topeka, Kansas, and counselor to the Easter Seal Society in psychiatry; and Basil O'Connor, president of the National Foundation for Infantile Paralysis.

The program also will feature Dr. Augustus Thorndike, president of the Bay State Medical Rehabilitation Clinic, and Dr. William T. Green, orthopedic surgeon and Chairman of the Joint Committee on the Public Care of Crippled Children, Boston, who will conduct a medical seminar.

New Goals Seen in Treating Crippled Children

Although great progress has been made in removing the conditions that cause handicapping in children, new medical horizons have appeared in this area that are even more challenging than the old. Attention is now focused on diseases and conditions, particularly of the nervous system, which had previously been regarded as hopeless.

What these conditions are, what is being done about them, and what remains to be done is described in a 25-cent pamphlet, *Gains for Handicapped Children*, published by the Public Affairs Committee, 22 East 38th Street, New York in cooperation with the Association for the Aid of Crippled Children of New York.

"Together, cerebral palsy, epilepsy, muscular dystrophy, rheumatic fever, and congenital malformations affect over a million and a half children and young people in the United States today and an equal number of adults," Herbert Yahraes, author of the pamphlet, points out.

"Worse than the actual physical trouble imposed by any crippling condition," Mr. Yahraes adds, "may be the emotional difficulties that frequently accompany it or follow in its train. To overcome these difficulties requires a good deal of warmth, understanding, and skill on the part of parents first and then everyone else who comes into contact with the child."

He points out that there is danger in both overprotection and rejection. "Normal children grow by failing. Handicapped children do the same thing. Today they experience failures, tomorrow successes—only more failures and longer than other children."

In reviewing the recent progress in the fight against crippling conditions, the author stresses four points:

"1. *Our immense progress.* Medical research has made great strides in the last decade in adding to our knowledge and in moving closer to the control and elimination of serious crippling diseases. . . . Parents, teachers, employers, and the public in general have a better understanding of handicaps, and a more constructive attitude toward handicapped persons.

"2. *The need for spreading our present knowledge and increasing our facilities and trained personnel.* Most children who have had rheumatic fever are not getting the treatment that would prevent further attacks; most epileptics are either not being treated or have not been given the best available medication.

"3. *The need for expanding our research programs.* Recent research offers two extraordinary hopes: that we shall be able to track down and do something about the metabolic deficiences that apparently give rise to epilepsy, muscular dystrophy and other conditions; and that eventually we may learn the secret of the regeneration of nerve tissue. None of the miracles wrought by science in recent times would be greater than these.

"4. *There is also the need for better planning and coordination of community facilities for the handicapped;* close cooperation between those engaged in treatment and those doing research; and improved communication among scientists working on similar and related research problems."

Copies of this pamphlet are available from the Public Affairs Committee, 22 East 38th Street, New York City, at 25 cents per copy.

North Carolina Examination for Registration

An examination for registration under the North Carolina Practice Act will be given in Charlotte on Friday, November 12, 1954. Application forms and further information may be obtained from Margaret L. Moore, Secretary of the State Examining Committee of Physical Therapists, North Carolina Memorial Hospital, Chapel Hill, North Carolina.

Physical Therapy Programs—1954

APPROVED BY THE COUNCIL ON MEDICAL EDUCATION AND HOSPITALS OF THE AMERICAN MEDICAL ASSOCIATION

DEGREE and CERTIFICATE PROGRAMS—Information on specific entrance requirements should be obtained from the schools listed below. Schools offering a degree will accept high school graduates for the four year program leading to a baccalaureate degree, *as well as transfer students.* A certificate program is a concentrated course of study offered to those who have completed all or most of their undergraduate work before declaring a major in physical therapy. Graduates of either the degree or certificate programs are equally qualified.

	Degree Program	*Certificate Program*
California		
School of Physical Therapy Childrens Hospital Society (Univ. of California at Los Angeles) 4614 Sunset Boulevard Los Angeles 27	†	†
School of Physical Therapy College of Medical Evangelists White Memorial Hospital Boyle and Michigan Avenues Los Angeles 33	†	*
Department of Physical Therapy University of Southern California University Park Los Angeles 7	†	†
Curriculum in Physical Therapy School of Medicine University of California 3rd and Parnassus San Francisco 22	†	†
Division of Physical Therapy Stanford University Stanford	†	†
Colorado		
School of Physical Therapy School of Medicine University of Colorado 4200 East 9th Avenue Denver 7	†	†
Connecticut		
School of Physical Therapy University of Connecticut Box U 101 Storrs	†	
Illinois		
Course in Physical Therapy Northwestern University Medical School 303 East Chicago Avenue Chicago 11	†	†
Iowa		
Department of Physical Therapy State University of Iowa University Hospitals Iowa City		†
Kansas		
Section of Physical Therapy University of Kansas Medical Center 39th and Rainbow Boulevard Kansas City 3	†	†
Louisiana		
School of Physical Therapy Charity Hospital of Louisiana 1532 Tulane Avenue New Orleans 12		†
Massachusetts		
Department of Physical Therapy Boston University Sargent College of Physical Education 6 Everett Street Cambridge 38	†	†
*Course in Physical Therapy Bouve-Boston School Tufts College Medford 55	†	
*Program in Physical Therapy Simmons College The Fenway Boston	†	†
Michigan		
Curriculum in Physical Therapy University of Michigan 1313 East Ann Street Ann Arbor	†	†

*Accepts women students only.

	Degree Program	Certificate Program
Minnesota		
School of Physical Therapy Mayo Clinic 102-110 Second Avenue, S.W. Rochester		†
Course in Physical Therapy University Hospital, 204-TWH University of Minnesota Minneapolis 14	†	
Missouri		
Division of Health and Hospital Services St. Louis University 1325 South Grand Boulevard St. Louis 4	†	
Department of Physical Therapy School of Medicine Washington University 660 South Kingshighway St. Louis 10	†	
New York		
*School of Physical Therapy Albany Hospital (Russell Sage College) New Scotland Avenue Albany 8	†	†
Courses for Physical Therapists Columbia University College of Physicians and Surgeons 630 West 168th Street New York 32	†	†
Physical Therapy Division School of Education, New York University Washington Square East New York 3	†	†
Program in Physical Therapy University of Buffalo 2183 Main Street Buffalo 14	†	†
North Carolina		
Physical Therapy Course School of Medicine Duke University Durham		†
Ohio		
Course in Physical Therapy Frank E. Bunts Ed. Inst. Cleveland Clinic Hospital 2020 East 93rd Street Cleveland 6		†
Pennsylvania		
Division of Physical Therapy School of Auxiliary Medical Services University of Pennsylvania 1818 Lombard Street Philadelphia 46	†	†
Division of Physical Therapy The D. T. Watson School of Physiatrics (In affiliation with the University of Pittsburgh) Sunny Hill Leetsdale	†	†
Puerto Rico		
School of Physical and Occupational Therapy Commonwealth of Puerto Rico State Insurance Fund San Juan, P.R.		†
Texas		
Grady Vaughn School of Physical Therapy Baylor University University Hospital Dallas	†	†
Hermann School of Physical Therapy Hermann Hospital 1203 Ross Sterling Avenue Houston 5		†
Division of Physical Therapy University of Texas School of Medicine Galveston	†	†
Virginia		
School of Physical Therapy Baruch Center of Physical Medicine and Rehabilitation Medical College of Virginia 1203 East Broad Street Richmond 19	†	†
Wisconsin		
Course in Physical Therapy Medical School, University of Wisconsin Madison 6	†	†
U. S. Army Medical Service		
*Physical Therapy Course Medical Field Service School Brooke Army Medical Center, Fort Sam Houston, Texas and Brooke, Letterman and Walter Reed Army Hospitals Write to: The Surgeon General Department of the Army Washington 25, D. C. Att: Personnel Division		†

*Accepts women students only.

Please direct all inquiries regarding tuition, entrance requirements and other specific information to the school and *not* to the American Physical Therapy Association.

Abstracts

Use of Ultrasonic Radiation in the Treatment of Subdeltoid Bursitis With and Without Calcareous Deposits

J. Aldes and T. Klaras, WEST. J. SURG., 62:369-376, July, 1954.

This study is a clinical evaluation of ultrasonic therapy compared with conventional type of therapy for chronic and acute subdeltoid bursitis with and without calcareous deposits.

A discussion of the physical, physiological, and biochemical properties of ultrasonic radiation is presented. Statistical data is presented showing the results obtained in 210 cases over a three-year period.

Conclusions of this study showed that ultrasonic radiation proved more effective than conventional form of treatment, but proved most effective in combination with conservative methods. No ill effects to the patient were noted.

The authors feel that ultrasonic radiation alone, or in combination with other conventional methods, is the procedure of choice for the treatment of subdeltoid bursitis.

Changes in Bone after Exposure to Ultrasonic Energy

N. I. Ardan, J. M. Janes, J. F. Herrick, MINNESOTA MEDICINE, 37:415-420, June, 1954.

The response of dogs to apparently uniform amounts of ultrasonic energy was studied, and the results showed variable effects. Both femora of the dogs were exposed through the lateral aspect of the thigh with either 15 watts of power with a frequency of 1,000 kilocycles per second, or 20 watts with 800 kilocycles per second.

After exposure all animals showed a limp in one or both hind legs which disappeared in 12 to 24 hours. Thirteen animals showed minimal evidence of mottled densities with occasional erosions of the cortex. Eight femora showed similar changes but to a lesser degree. Eleven appeared completely normal. One animal in which a thermocouple had been used to guide the sound, showed periosteal reactions, sequestration, complete dissociation of the fractured fragments with non-union, and finally, resorption of the periosteal reaction and the necrotic segment. Soft tissue changes were also present.

The femora which showed extensive changes in radiologic and histologic studies all had been subject to 20 watts of ultrasonic energy. Of the eleven that appeared normal roentgenologically, five received 15 watts, and six received the larger dose of 20 watts. However, negative results of x-ray studies do not necessarily rule out changes in bone.

The dosages of ultrasonic energy used were within the limits considered safe for human therapy, but the energy was concentrated over one spot. Clinically, a massaging technic is used which does not permit the heating effect to become cumulative. Nevertheless, the results of this experiment point to certain dangers inherent in the technics and the authors warn against its use by untrained personnel.

Evaluation of a Cerebral Palsy Treatment Program

Ralph Hanna, William G. Wolfe, and Shelby L. Walch, TEXAS STATE J. MED., 50:7:474, July, 1954.

This is an analysis and evaluation of the Austin Cerebral Palsy Center. Orthopedic involvement, speech involvement, mental status and educability, emotional status and general physical condition were compared in each case from time to time.

It was found that the various manifestations of cerebral palsy in this study are in general agreement with previously published data. In view of the findings it is concluded that the function of a cerebral palsy treatment center is threefold: treatment, research and training.

Before treatment is started, it is essential to have a diagnosis of the brain injury. There is a need for the development of specialized methods of testing intelligence. Research into improved diagnostic and therapeutic methods is needed as is study which will lead to decreasing the number of brain injuries. Training includes education of the parent as well as job training and vocational guidance for the patient. Well staffed centers should provide programs for training all types of therapists.

Absence of Tonsils as a Factor in the Development of Bulbar Poliomyelitis

G. W. Anderson and J. L. Rondeau, J. A. M. A., 155:1123-1130, July 24, 1954.

It has been found that persons with bulbar poliomyelitis are more likely to have had their tonsils removed than are those with spinal and nonparalytic forms of the disease. If polio does occur in a patient who has had a tonsillectomy, the likelihood is four times as great that he will have bulbar involvement. It has been shown that the incidence rates between bulbar and other forms of polio have no relation to sex or age differences, nor to economic stratification.

This higher proportion of cases with bulbar involvement in patients who have had tonsillectomy, occurs at all ages regardless of the time that has elapsed since the operation. No data has been brought forth to substantiate the claim that the frequency of nose and throat infections prior to tonsillectomy could be a contributing factor.

It is untenable that the bulbar involvement might be due to an escape of the virus from the blood stream through the capillary walls in the medullary area. If this concept of the pathogenesis is correct, it would require the assumption that removal of the tonsils would in some unknown manner, increase the permeability of the capillaries in the medulla. It is possible, however, that the virus may be directly absorbed from the throat by the fibers of the 9th and 10th cranial nerves which innervate the tonsillar crypts. No evidence was found as to the effect of tonsillectomy in altering susceptibility to clinically recognizable poliomyelitis.

Studies in Myasthenia Gravis

(Preliminary Report on Therapy with Mestinon Bromide)

K. E. Osserman, P. Teng, and C. I. Kaplan, J.A.M.A., 155:961-965, July 10, 1954

The comparative values of neostigmine and Mestinon (pyridostigmine bromide) as cholinergic drugs for the treatment of myasthenia gravis are discussed in the article. The studies were made on 20 patients

with myasthenia gravis and the results obtained showed 15 patients on which Mestinon proved more effective than neostigmine. In this group, nine showed excellent results in that the myasthenia was improved and side reactions were absent; three cases showed good improvement, and fair in three cases. Four patients showed an improvement equivalent to that obtained with neostigmine. The treatment was unsuccessful in one case.

The effectiveness of Mestinon is only very slightly longer than that of neostigmine. It relieved weakness of the small skeletal muscles ennervated by cranial nerves while its action on the limb muscles was slow and not as effective as that of neostigmine. The most beneficial effect of Mestinon over neostigmine was the decrease of muscarinic and nicotinic side reactions. It is too early to evaluate the effect of Mestinon on the hematopoietic system.

Further research is necessary before Mestinon can be suggested as the drug of choice.

Physical Medicine Management of the Tuberculosis Thoracic Surgery Patient

Fred J. Sheffield and Robert A. Gregg, ARIZONA MEDICINE, 11:6:214, June, 1954.

There are four principles involved in the management of the pulmonary tuberculosis surgery patient which are basic. By following these principles the recovery of these patients should be free from marked musculoskeletal disabilities and they should be able to return to their former occupation.

1) All efforts should be made to protect the weak, injured muscles from their stronger antagonists.
2) Reeducation and strengthening of the weakened and traumatized muscles should be continued until their functional strength has returned to normal.
3) Joint range of motion should be maintained in all planes.
4) A sense of correct posture and a normal postural pattern should be developed in the patient.

An Experimental Study of Muscle Growth in the Rabbit.

G. N. C. Crawford, J BONE & JOINT SURG., 36 B:294-303, May 1954.

In young rabbits the muscle belly of the tibialis anterior was marked at intervals, either on its surface with India ink, or in its substance by wires. The intervals between ink marks were measured directly, and those between wires by radiography. After four to seven months the measurements were repeated and the amount and site of longitudinal growth determined. The experiments showed that it occurred fairly evenly throughout the length of the muscle belly.

By transfer of the tibialis anterior in front of the crural ligament in young rabbits its course was reduced and the extent of contraction necessary to dorsiflex the foot was increased. The rabbits were killed when fully grown and the lengths of the tendons and muscle bellies of the tibialis anterior of the normal and experimental legs were compared. It was found that in every case the tendon of the experimental muscle was shortened and its belly lengthened in comparison with the normal. It is suggested that the increased length of the muscle belly was determined by the increased distance which it had to contract in order to dorsiflex the foot.

What Can We Do About Polio? — 1954

Thomas Gucker, III, J. KENTUCKY STATE M. A., 52:6:413, June, 1954.

The past five years have been marked by important events on the frontiers of research in poliomyelitis. This is a summary of the present status in prevention of paralysis and treatment of the after effects.

The goal in treating those with paralysis is to help the patient to be as nearly normal as possible with the least amount of apparatus and the least amount of surgery. With adequate motivation the majority of polio patients can become independent functionally and able to live happy lives. It is expected that for future generations the vaccine will eliminate the deaths and the relatively small number of completely helpless victims.

The Medical Profession and the Voluntary Health Agencies.

Edward Press, J.A.M.A., 155:1216-1219, July 31, 1954.

With the modern development of telephone, radio, motion pictures, television, and faster communication has come a greater dissemination of knowledge of all kinds. In the field of public health, it has become an "age of organization." Neighborly friendliness that in bygone years fostered charitable acts for needy neighbors now fosters the same service through the voluntary private organization. There are over 20,000 such agencies in the United States which have developed in relation to a disease, a symptom, an organ, or a special age group. Better known agencies include the National Foundation for Infantile Paralysis, American Heart Association, American Hearing Society and the Association for the Aid of Crippled Children.

Most of the public health agencies have arisen because a group of persons had a strong feeling about the inadequacy, incompleteness, and lack of effectiveness of the programs of existing official medical agencies or individuals. Many programs have had to combat condescension and criticism on the part of members of the medical profession. It is true that of the efforts of 20,000 voluntary agencies some are bound to be somewhat amateurish; however, the majority of these persons are trying their sincere best to help. With so many in the field, the problem of conflicts and overlapping services is likely. To prevent such conflict a survey was made by a special committee of qualified professional and lay persons in Chicago. The study was fairly extensive and involved correspondence with 65 voluntary and official agencies or institutions. Unmet needs and goals were discussed and the over-all situation carefully reviewed.

Some of the recommendations are as follows:

1. New voluntary agencies should not operate or administer programs in the fields of medical care and treatment, public schooling and education, custodial care or vocational training. Encouragement and financial assistance would be proper and desirable.
2. A small group of carefully selected, qualified and experienced persons representing various professional fields should be used in an advisory and consultant capacity.

3. The diagnostic and treatment services should be performed by a team of skilled professional specialists, with a director in charge of arranging activities and pooling information.
4. The medical services should be part of an all-over hospital and outpatient facility where laboratory procedures and medical and paramedical consultations are available.
5. Special attention should be given to research on the prevention and treatment of the disorder.
6. The goal of the agency should include the total rehabilitation of the patient.
7. Voluntary agencies can make a valuable contribution by granting scholarships for undergraduate and graduate professional training, sponsoring seminars, workshops, and other training facilities.
8. The proper interpretation and full explanation to the patient and his family is of great importance. Increased understanding of the disorder by the patient can be of immeasurable benefit in gaining his full and sustained cooperation.

Rehabilitation of a Bilateral Above-Knee Amputee

Manley B. Shaw, and Christine K. Kline, NORTHWEST MEDICINE, 53:6: 594, June, 1954.

A 44 year old male patient, after a five-year history of severe vascular difficulties had a bilateral above-knee amputation. He was referred to physical medicine six weeks after surgery.

The stumps were in excellent condition and nearly equal in length. There was a small degree of limitation in hip extension. Progressive resistive exercises to the hip girdle muscles were begun.

Because the patient had been 6′ 3″ in height, ambulation was initiated by the use of "stubbies" which had conventional sockets and were held on by suspender arrangement. They were short, had no knee joint, and had an ankle joint with limited motion. Progress was made to lengthening the prostheses by 10 inches and rehabilitation procedures continued through advanced ambulation and climbing. Then regular, suction socket prostheses were procured.

It was felt that the rehabilitation progressed more rapidly and safely for a very tall person by using this method.

Spondylolisthesis in the aged

J. Gershon-Cohen, H. Schraer, N. Blumberg, GERIATRICS. 9:327–328, July, 1954.

Among 137 healthy aged subjects, posterior spondylolisthesis was found in 9 cases. Two of these showed the retrodisplacement in the lower dorsal spine and 7 in the upper lumbar spine. Osteoporosis and hypertrophic degenerative changes were general and there were disruptive changes in the subjacent intervertebral joint. Local signs and symptoms were lacking and backache was too general to be of diagnostic aid. Most subjects had a rotund kyphosis of the upper dorsal spine but none had localized disalignment which was clinically detected at the level of the retrodisplacement.

Anterior spondylolisthesis was found in 12 subjects in the lower lumbar spine at the levels of the fourth and fifth lumbar vertebrae. These were readily discernible on x-ray film. Schisis of the pedicles was usually present and accounted for the forward slipping of the vertebral body. Failure to elicit a history of injury and the absence of complaints or disability was characteristic of both posterior and anterior displacements.

Physical Therapy in Office Practice

Louis P. Britt, J. TENNESSEE M. A., 47:6:239, June, 1954.

It is the responsibility of the physician to give an accurate prescription for physical therapy.

The various methods of applying thermotherapy are discussed, with detailed explanation and a list of contraindications.

Massage is perhaps the most abused modality in physical therapy. The various types of massage have different effects and should be used with intelligent selection.

Therapeutic exercise is the most important single modality of physical therapy. It must be prescribed with care to accomplish its purpose.

This paper is a plea for the judicious use of physical therapy.

Abstractors for November

Ila Jane Amrhein
Helen Hislop
Louise Reinecke
Martha Wroe

Book Reviews . . . . .

Auditory Disorders in Children. A Manual for Differential Diagnosis. *By Helmer R. Myklebust, Professor of Audiology, School of Speech; Professor of Otolaryngology, School of Medicine; Director of Children's Hearing and Aphasia Clinic, Northwestern University, Chicago. Cloth. Price $6.00; Pp. 367. Grune & Stratton, New York, 1954.*

This book would be well worth careful study if for no other reason than its emphasis and reemphasis upon one tremendous principle. That principle—not a new one in work with children—says that a child is a whole individual, not a collection of functions that can be taken apart for inspection or treatment, and that we had better remember this when something seems to be wrong with him somewhere. It is tragically easy to forget it.

The author is speaking particularly of children who have not developed speech and whose ability to hear is therefore in question. He points out, from his broad clinical and teaching experience, that it has been customary to consider hearing as a predominantly physiological function. This has led specialists, clinical workers, parents, and others to tend to "lift out" a child's hearing, to examine it, and give treatments for it as if it could be separated from his total behavior. To partition a child's functions in this way, says the author, is to run the risk of doing grave damage to the child, because it can lead to wrong diagnosis and therefore of course to wrong treatment. This wastes times,

it wastes money, and it may mean permanent waste of the child's chance for a hopeful future.

The author regards with the utmost seriousness the "team-work" responsibility of the various specialists and workers who may be involved in the attempt to discover what, exactly, is wrong with the auditory capacities of a young child who has no language. He points out that for such a child a differential diagnosis is indispensable. Such a diagnosis takes into account not only the central fact of the auditory disorder itself but also, and of quite as great importance, the individual differences and changes which this particular auditory disorder has produced in the development and the behavior of this particular child. All of this implies that each person having anything to do with arriving at a diagnosis of the child's disorder must think of himself in a very real sense as a member of a diagnostic team, even when he works alone with the child. His findings and interpretations must serve as a part of the total findings and interpretations; and all, taken together, will give a truer picture of the child's needs than could the conclusions of a single specialist.

The "team-work" idea implies, also, that each specialist ought to have at least a background knowledge of the work of other specialists cooperating to provide diagnostic services for any one child. This, the author notes, should guide the planning of study and training for these professional workers.

In preparing a manual to assist with the differential diagnosis which he recommends, the author has brought together in the one volume an array of valuable material. Most of it can be found scattered through the literature, but those who work with children having auditory disorders will appreciate this compact handbook. The roles of hearing and listening in a child's language development are discussed; and, logically, the author goes on to the technics and the interpretation of the differential case history.

Many workers perhaps will find the section on behavioral symptomatology the most informative part of the book. Here the author describes children's behavior as influenced by the several types of auditory disorder discussed in the book.

A section on examination methods and procedures gives brief descriptive coverage to this important phase of the differential diagnosis.

Following are short case descriptions of several representative children with whom the author and his associates have worked; and following these are the briefest possible general recomendations for the handling of children with auditory disturbances. The author believes that detailed recommendations should properly come from the specialists cooperating to serve any given child, but the brevity of this section of the book may be disappointing to some readers who are approaching the field with professional interest but not extensive experience. And indeed, some of the specialists, having crowded schedules and lacking specific training in some areas of this differentiated professional field, as the author himself has pointed out, may come to the end of this useful book wishing for somewhat greater detail in its final section. All workers, however, will find the manual of considerable service and lasting value.

Lesions of the Lumbar Intervertebral Disc. *A Monograph on the Bannerstone Division of American Lectures in Surgery. By R. Glen Spurling, M.D., Clinical Professor of Surgery (Neursurgery), University of Louisville School of Medicine, Louisville, Kentucky. Edited by Michael E. DeBakey, M.D., Professor of Surgery and Chairman of Department of Surgery, Baylor University College of Medicine, Houston, Texas. Cloth; price $4.75. Pp. 148; illus. 77. Charles C Thomas, Springfield, Illinois. 1953.*

The first portion of this book deals lightly with the anatomy and embryology of the spinal column and intervertebral discs.

Pathogenesis and pathologic processes are covered in the second section. Of the lumbar ruptures, 95 per cent occur at either the fourth or fifth interspace, and 5 per cent at the third lumbar interspace. Four important facts must be kept in mind:

1) A pathologic change in the annulus fibrosus, nucleus pulposus, or cartilage plate will affect changes in other structures anatomically related.

2) Vulnerability to pathologic changes is enhanced by the early decadence of the intervertebral disc.

3) Specific, severe trauma seldom produces a ruptured disc. It generally is caused by trauma in the broad sense, that is, trauma of everyday living.

4) After a disc is ruptured, its normal physiologic state cannot be restored.

Most herniations occur when the nucleus pulposus extends into the spongiosa of the vertebral body. The next most frequent lesion is the protrusion of the nucleus pulposus through the posterior annulus fibrosa into the spinal canal; and rarely, does the nucleus rupture the anterior or lateral extensions of the annulus fibrosus. Interestingly, it is thought that arthritic changes in the vertebral bodies occur only after alterations in the intervertebral discs occur. There is a discussion concerning the possibility of lumbar puncture being a causative factor in disc disease and injury.

The third general portion covers the diagnosis and clinical picture of the ruptured lumbar disc. Three males to one female are affected by this condition. The first symptom of a ruptured disc is pain in the back. There may or may not be sciatic pain. Partial or complete remission of symptoms occur. Motor, sensory, reflex, percussion, jugular compression, sciatic nerve stretching tests are all explained briefly, as are roentgenologic exam and myelography.

Section four covers treatment and can be divided into conservative therapy and surgery. Approximately nine types of conservative therapy are listed, including: exercise to correct postural deformities, heat, massage, keeping patient on a hard flat surface, and Buck's extension. The author suggests that one or more forms of conservative therapy be tried before considering surgery. Immediate surgery is indicated when there are sudden, severe neurologic disturbances, or when the patient is completely disabled by low back pain and sciatic difficulty with every attempt at ambulation. A surgical technic, which does not include spinal fusion, is described, and the author states that good results were obtained in 75 per cent of the surgical patients. The author does not advise postoperative exercise, but tells of one authority who advises spinal flexion exercises on the tenth postoperative day.

The last section of this book covers the results experienced by the author. Comparative studies showed that more surgical cases recovered than nonsurgical ones. Compensation cases do not have as high a percentage of recovery fol-

lowing surgical procedure. The results were tabulated on two groups: the first group covering a period from 1939 to 1947; the second group from 1947 to 1950. In the first group, results were obtained from 327 of 378 cases, in the second group, 298 of 322 cases. Of the first group, there was one death, 40 per cent were cured, 39 per cent had some pain, but could carry on in the regular work, 11 per cent were partially cured and 10 per cent were failures. Of the second group, there were 2 deaths, 60.4 per cent were cured, 22.1 per cent had some pain, 12.8 per cent were partially successful, and 4.7 per cent were failures. All were surgical patients.

This is a fair reference book, the illustrations are average.

The Atom Story. *By J. G. Feinberg, M.Sc. Foreword by Frederick Soddy, F.R.S. Cloth; Price $4.75. Pp. 221; illustrations by Lewis. Philosophical Library. New York, 1953.*

The author has produced a well written and extremely interesting book. The book is written for the layman, and the physical and chemical explanations are well within the knowledge and understanding of physical therapists.

It is the complete history of the atom beginning with a philosopher, Anaxagoras by name, in ancient Greece some 500 years B.C., who decided that if something was divided in half, then in half again and again, one could do it forever and still have something left—and ends at the present time with both the atom bomb and the hydrogen bomb.

Anaxagoras was followed by Democritus who actually called these "not cuttable" particles "atomos" and said, "Some substances are made of the fundamental particles of matter (atoms), others are the result of the union of these fundamental particles . . ." This theory was set back for almost 2,000 years, however, because Aristotle maintained that there were only four elements in the universe—fire, water, air, and earth. These according to Aristotle acted singly or together with a universal primordial stuff called "hyle."

It was not until the end of the seventeenth century that the atom theory was resurrected and accredited by the greatest philosopher of his day, Francis Bacon, and the two outstanding experimental scientists of the century, Robert Boyle and Isaac Newton.

Again in the eighteenth century the atomic theory received another setback by the phlogiston theory. Then in the nineteenth century the molecule entered the picture as did the search for atomic weights, Berzelius' shorthand symbols for the names of atoms and Mendelejeff's Periodic Table. However, the atom was not indestructible and science's sweet dreams of relative security ended when one scientist saw a mysterious glow in a darkened room. This, of course, was Professor Roentgen and his discovery, X-ray.

The story unfolds rapidly after this. The atom, as we know it today, with its neutrons, protons and circling electrons was finally uncovered part by part.

Mr. Feinberg does not tell how to make an atom bomb, but he does explain enough about atomic piles, the actual splitting of atoms, and the bomb that you almost feel you could. He even goes into Einstein's theory, which predicted the splitting of atoms and the energy released, so that it makes sense.

The book ends with the hope of a better world because of all the peaceful uses atomic energy can be put to and a warning of the horrors of atomic war, if it is not used peacefully.

The Child, His Parents and the Nurse. *By Florence Blake, R.N., M.A., Associate Professor of Nursing Education, University of Chicago. Foreword by Adrian H. Vanderveer, M.D. Cloth. Price $5.00; Pp. 440. J. B. Lippincott, Philadelphia, 1954.*

The purpose of this book is to give parents and hospital personnel an understanding of the physical and psychological growth of a child and to show how it can be affected by illness. It has long been felt that hospital staffs are trained to cope mainly with the physical ailment of a sick child and that they neglect the behavior pattern associated with an abrupt departure from the home to a strange place with strange persons. It is pointed out that it is normal for a child to be extremely negative and rebellious when first admitted to the hospital. It is not normal, however, when the child quietly accepts this change, or continues to be rebellious over a length of time. Here is a book which examines the emotional needs of a child in sickness and health. It shows how these reactions can be handled constructively by the hospital personnel during hospitalization, and by the parents during convalescence at home.

The book is divided into nine sections beginning with an introduction on the nurse's role in preventive mental health programs for the future. The author then discusses the prenatal period, the influence on the mother-child relationship, continuing through the adolescent period.

Even though this book is written mainly for those interested in pediatric nursing, it could be easily incorporated into the curriculum of a physical therapy school. The nurse's and the physical therapist's contact with the sick child are obviously more intimate than the physician's and for a required time, than the parent's. To learn how to accept with good management, the strong attachment offered by the child in the ward; to help understand and evaluate the causes of anxiety in the child; to avert the possibility of psychic trauma during hospitalization; to better understand child behaviour in relation to hospital functions and also to parent reactions—all these important factors are outlined in the book. It is clearly and intelligently written for all who seek help and guidance in child behaviour, and who strive to teach sound mental hygiene.

Understanding The Japanese Mind. *By James Clark Moloney, M.D. Cloth. Price $3.50; Pp. 252. Philosophical Library. New York. 1954.*

To understand the Japanese mind one must look at the Japanese people. In this book, the author borrows freely from Japanese history, religion, anthropology and, of course, the author's basic discipline, psychoanalysis.

The main theme, which is so apparent to the occidental, is that the Japanese from early infancy are taught prescribed Japanese behavior. Among these are: "ko" (obsequiousness toward father or parent substitute); "bun" (prescribed status in society to which every Japanese is born); "ie" (family or house); and "giri" (obligation toward family, society, and/or individual). These traits produce a

culture in which the individual is subordinate to the group. A pattern of behavior results in which group behavior is all important. By the process of syncretization, the Japanese people adapt occidental ways and mores into the Japanese culture without disturbing the roots of their own culture.

Psychoanlysis in Japan consists of helping the individual who is out of step with the culture to get back into it, while in occidental culture psychoanalysis allows the individual to make his own decisions within the framework of the particular culture. By syncretization, the Japanese have taken from psychoanalysis what they need.

The book is difficult to follow because of the many sources of information used by the author and, unless one has a psychoanalytic orientation, some sections may be difficult to understand. However, a different picture of the Japanese people and the way they think can be compared with our stereotyped view of the formerly (before this book) "inscrutable, mysterious people."

Committee Common Sense. *By Audrey R. and Harleigh B. Trecker, authors of "How to Work With Groups." Cloth. Price $2.50; Pp. 158. Whiteside Inc., and William Morrow & Company Inc., New York, 1954.*

An interrogation of the Committee, its process, its purpose, its participants and its pitfalls—this volume encompasses every phase of the committee from the rationale of its very existence to the impact of its effectiveness.

You cannot "lose *yourself* in this book" if you have ever been a committee participant. Every few pages a pertinent question will make you aware of your past experiences. In the answers to their questions the authors have presented workable solutions to the frustrations of poorly organized and improperly run committees, as well as constructive suggestions upon which to build rewarding committees. They show concern about the millions of hours of work invested by millions of committee people and have prepared a guide for critically examining this investment in an effort to make it more productive.

To them the committee system is the democratic system; the committee is the task force of democracy.

Labanotation; The System For Recording Movement. *By Ann Hutchinson, President, Dance Notation Bureau, Inc. Cloth; price $3.50. Pp. 274; illus. 483. New Directions, New York, 1954.*

A clearly written and abundantly illustrated text on the recording of body movement by means of symbols. Based on the "Alphabet of Basic Symbols" developed by Rudolph Labon, the system is simple enough to be understood by nondancers but capable of expanding to permit the recording of a complex choreography.

The value of the system lies in its ability to record even extremely complex movement, so that, like written music, it can be accurately reproduced by anyone who can read the symbols.

Although primarily designed for dance notation the system has other applications. In the field of physical therapy it offers a method of exercise notation which would be far more accurate than the usual descriptive terms. It also may be of value in recording basic patterns of movement as they are used in certain systems of neuromuscular reeducation. It seems unlikely, however, to achieve wide-spread acceptance or use outside the realm of the dance.

Directory for Exceptional Children. Schools, Services, other Facilities. *Edited by E. Nelson Hayes with a preface by M. E. Frampton and E. D. Gall. Paper, $1.10; Cloth, $2.20. Pp. 96. Porter Sargent Publishers, Boston, 1954.*

This directory provides reliable information for parents, school administrators, social agencies, and physical therapists of facilities available to these children. It includes listing by states of private schools, as well as by classification of type of facility, including the crippled and those specifically for the cerebral palsied. State services and national associations, societies, and foundations directly or indirectly concerned with the welfare of exceptional children are also included.

Physical therapists concerned with the care of the handicapped child will find this a valuable source of information.

The reviews here published have been prepared by competent authorities and do not represent the opinions of the American Physical Therapy Association.

Our Book Reviewers for November

Beryl Baumgartner Bilderbeck, formerly Instructor, Division of Physical Therapy School of Auxiliary Medical Services, University of Pennsylvania, Philadelphia.

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Louise Arey Esterer, former Supervisor of Special Education, Michigan Department of Public Instruction; now a resident of Long View, Washington.

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Mary E. Nesbitt, Supervisor of Physical Therapy, Department of Physical Medicine, Massachusetts General Hospital, Boston; President of the American Physical Therapy Association.

Miriam Rodenberger, Capt., WMSC, 3201st USAF Hospital, Eglin AFB, Valparaiso, Florida.

Harvey D. Strassman, Capt., MC, Valley Forge Hospital, Phoenixville, Pennsylvania.

Classified WANT-ADS

WANTED: QUALIFIED physical therapist (male or female) for 125-bed children's orthopedic hospital. Polio center for acute and convalescent care; rehabilitation cases of all age levels; P.O. orthopedic and a very few C.P. patients. Affiliate student training with Columbia University. Daylight ground floor department with pools and excellent equipment. Good starting salary, merit raises, 40-hour week, maintenance optional, 12-day sick leave, 2-weeks' vacation, Social Security, and insurance. Write Mr. George I. Mattix, Administrator, Morris Memorial Hospital, Milton, West Virginia.

WANTED: PHYSICAL THERAPIST to treat patients in their homes. Five-day, 40-hour week; good personnel policies. Salary open. Write Marian B. Nelson, Ex. Director, Visiting Nurse Assn. of Staten Island, 61 Stuyvesant Pl., Staten Island, N. Y.

WANTED: PHYSICAL THERAPIST for 550-bed general hospital. Enlarging Dept. of Physical Medicine and Rehabilitation. Present staff, four therapists. All types of patients treated. Liberal salary and vacation. Social security, pension. Apply Assistant Administrator, The Reading Hospital, Reading, Pa.

QUALIFIED PHYSICAL THERAPIST to staff one-person department in new 225-bed general hospital. Salary dependent upon experience. For further details write Personnel Office, Oakwood Hospital, Dearborn, Michigan.

PHYSICAL THERAPIST NEEDED to take charge of department for 150-bed general hospital expanding to 200 beds. Liberal personnel policies. Write or phone collect—2900 St. Luke's Hospital, Marquette, Michigan.

PHYSICAL THERAPIST: Registered, for general physical medicine in outpatient clinic of new Sinai Hospital. Write Mr. M. J. Lawrence, Director, North End Clinic, 936 Holbrook Avenue, Detroit 11, Michigan.

QUALIFIED PHYSICAL THERAPIST or physical therapist-occupational therapist combined needed for new outpatient cerebral palsy treatment center beginning immediately. Excellent working conditions. Six paid holidays, paid annual vacation, 5-day work week. Salary open. Send full particulars in application to Dr. Richard G. Skinner, Jr., Medical Director, United Cerebral Palsy of Jacksonville, 2849 Highland Avenue, Jacksonville 7, Florida. Experience is desirable but not necessary.

PHYSICAL THERAPIST for Georgia Brown Blosser Home for Crippled Children, Marshall, Missouri. Position available November 1, 1954. Apply to Mrs. A. J. Bechman, Superintendent, 828 E. Eastwood, Marshall, Missouri.

IMMEDIATE OPENING for qualified physical therapist in 60-bed general hospital. Budget for adequate equipment. Generous salary, 40-hour week, sick leave, 3 weeks' vacation. Rural area; excellent hunting and fishing. Write Administrator, Modoc Medical Center, Alturas, Calif.

WANTED: EXPERIENCED PHYSICAL THERAPIST qualified to give sound leadership to staff of 20, plus 1 R.P.T. in a V.N.A. providing a generalized service. Some direct service to patients. Salary dependent upon experience. Social security, retirement, 40-hour, 5-day wk., 30-day vacation. Apply Director, Visiting Nurse Association, 20 Maple St., Springfield, Mass.

POSITION: Physical therapist for new cerebral palsy center. If person has had sufficient experience, directorship will be open also. Apply to Mrs. Thomas Owen, Amarillo Cerebral Palsy Center, Amarillo, Texas.

IMMEDIATE PLACEMENT for registered physical therapists (male or female) for rapidly expanding physical medicine and rehabilitation institute serving two hospitals, total 1,250 general medical and surgical beds, in largest centrally located industrial center in Illinois. Six paid holidays, two weeks' paid annual vacation, sick leave accumulative, five-day work week. Openings for supervisor and staff physical therapists. Good opportunities for advancement. Write: Medical Director, Institute of Physical Medicine, Rehabilitation, 619 No. Glen Oak Ave., Peoria, Illinois.

WANTED: EXPERIENCED physical therapist (female) for 250-bed hospital and a small well equipped emergency polio center. Good salary; hours from eight to four; paid vacation and sick leave; and Social Security. Definite opportunity for advancement. Apply to Mr. Freeman May, Administrator, Baptist Hospital, Alexandria, Louisiana.

WANTED: PHYSICAL THERAPIST eligible for New York State license in expanding dept. of large general teaching hospital to be under professional guidance of a Diplomate of the American Board of Physical Medicine. Position concerns treatment on all services including pediatrics, inpatient and outpatient. Excellent starting salary, 5 days, liberal vacations, holidays, and many other benefits. Apply: Personnel Director, Jewish Hospital of Brooklyn, 555 Prospect Pl. Brooklyn.

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